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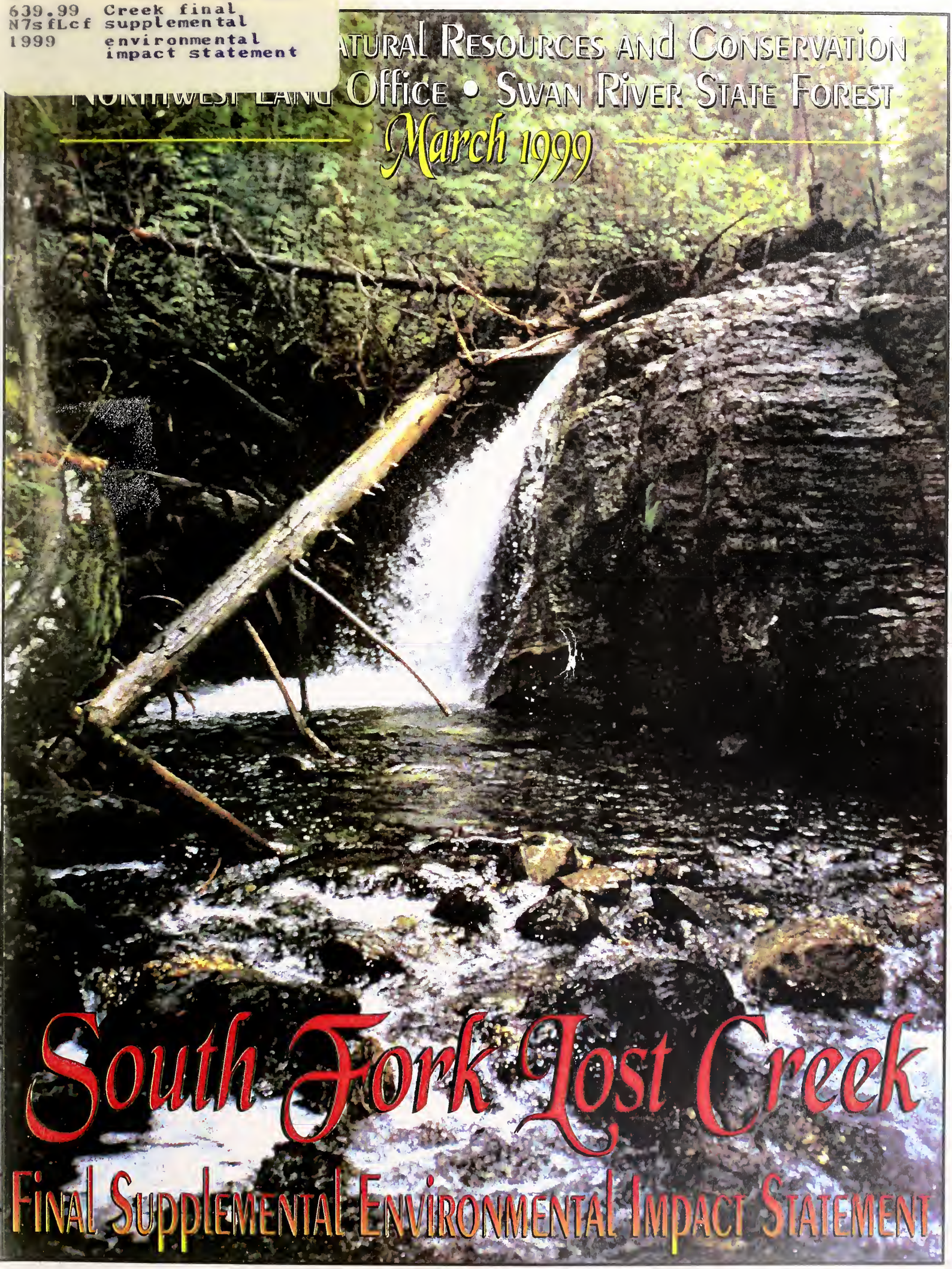
South Fork Lost Creek final supplemental environmental impact statement

...atural Resources and Conservation
Northwest Land Office • Swan River State Forest
March 1999



South Fork Lost Creek

Final Supplemental Environmental Impact Statement

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ABBREVIATIONS

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BMP	Best Management Practices
BMU	Bear Management Unit
CEA	cumulative effects assessment
DBH	diameter at breast height
DEQ	Montana Department of Environmental Quality
DFWP	Montana Department of Fish, Wildlife and Parks
DNRC	Montana Department of Natural Resources and Conservation
ECA	Equivalent Clearcut Acres
EIS	environmental impact statement
ESA	Endangered Species Act
FI	Forest Improvement
FNF	Flathead National Forest
FRTA	National Forest Roads and Trails Act
FY	fiscal year
GIS	Geographic Information System
H.E.	habitat effectiveness
HTG	habitat type groups
ICRB	Interior Columbia River Basin Project
ID Team	interdisciplinary team
IGBC	Ineragency Grizzly Bear Committee
MBF	thousand board feet
MEPA	Montana Environmental Policy Act
MFI	mean fire interval
MMBF	million board feet
NCDE	Northern Continental Divide Ecosystem (Grizzly Bear Recovery Area)
ORD	open road density
OSHA	Office of Safety and Health Administration
RMS	Resource Management Standard
ROD	Record of Decision
SFLMP	State Forest Land Management Plan
SLI	Stand Level Inventory
SMZ	streamside management zone
SRSF	Swan River State Forest
SSFI	sale specific forest improvement
SVGBCA	Swan Valley Grizzly Bear Conservation Agreement
TAS	timber accounting system
TRD	total road density
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service

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SUMMARY

Final Supplemental Environmental Impact Statement for the South Fork Lost Creek Proposed Timber Sale

PROPOSED ACTION

Swan River State Forest (SRSF) proposes to harvest timber in the South Fork of Lost Creek drainage. SRSF is a branch of the Montana Department of Natural Resources (DNRC). The project area is located approximately 4 miles southeast of Swan Lake, Montana, and includes three full sections and portions of eight others in T24N-R17W, for a total of approximately 4,161 acres. If a harvest alternative is selected, 254 to 607 acres would be harvested through various silvicultural treatments. The SRSF Stand Level Inventory was screened to identify stands classified at risk and recommended for harvest

PURPOSE

The proposed harvest, ranging from about 3.5 to 11 MMBF of timber, is intended to improve the health of the forest and generate funding for the Montana School Trust Fund. The land involved in this proposed project is held by the State of Montana in trust for the support of public schools (Enabling Act of February 22, 1889; 1972 Montana Constitution, Article X, Section 11). DNRC and the State Board of Land Commissioners (Land Board) are required by law to administer these trust lands to produce the largest reasonable and legitimate return over the long run (Section 77-1-202, MCA).

THE AFFECTED ENVIRONMENT

The South Fork Lost Creek project area is located in the northeast corner of the Swan River State Forest approximately 4 miles southeast of Swan Lake. The 4,161 acres in the project area range in elevation from 3,360 feet where the South Fork of Lost Creek leaves the project area to 7,238 feet at the crest of an unnamed peak on the southeastern boundary. The project area consists of a steep, narrow, uninhabited canyon with rocky cliffs, limited access, avalanche chutes, heavy-timbered slopes, subalpine terrain and riparian areas along the South Fork of Lost Creek and small feeder streams.

Game animals inhabiting the project area, at least part of the year, include mule and white-tailed deer, elk, moose, and black bear. The Supplemental EIS addresses four wildlife species that are on the U.S. Fish and Wildlife Service endangered species list: grizzly bear, wolf, bald eagle, and peregrine falcon. Of these, only the grizzly bear is known to inhabit the project area at least part of the time.

The State Forest Land Management Plan (SFLMP) directs DNRC to "take a coarse filter approach to biodiversity by favoring an appropriate mix of stand structures and compositions on state lands" (Montana DNRC ROD, 1996). To implement a coarse-filter approach and meet SFLMP directives, landscape-analysis techniques were used to determine an appropriate mix of stand structures and compositions, including cover-type representation, age-class distribution, structural characteristics, and spatial considerations, such as patch size, shape, and location. The SFLMP directs DNRC to give special consideration to sensitive species when conducting forest management activities. DNRC recognizes that it is impossible to evaluate the effects of proposed actions on all wildlife species and their specific habitats within any given project area. We assume that if landscape patterns and processes similar to those species evolved with are maintained, then the full complement of species will be maintained across the landscape. Under the SFLMP, we manage State trust lands to maintain or restore a semblance of historic conditions, and make reasonable attempts to engage in cooperative planning efforts with major adjacent landowners (DNRC 1996).

Old growth stands cover about 56 percent (2,347 acres) of the project area and 45 percent (17,333 acres) of the SRSF. Old growth patch sizes in the project area average 334 acres. Tree species represented include Douglas-fir, western larch, cedar, western white pine, ponderosa pine, lodgepole pine, englemann spruce, subalpine fir, and whitebark pine. Mixed conifer stands dominated by western red cedar comprise 874 acres on the SRSF, and 462 acres in

the South Lost project area. These forests contain scattered older ponderosa pine on south facing slopes at the western end of the project area. Older white pine and species diverse sapling stands are also components of these old, lower-elevation forests. Moving up in elevation, the predominant western larch/Douglas-fir are interspersed with large proportions of subalpine fir and spruce. In sapling stands at the higher elevations, the predominant subalpine fir and spruce are mixed with a lesser component of western larch, Douglas-fir and whitebark pine. A lack of disturbance, in part due to effective fire suppression in the project area has led to a forest that is older and has a greater representation of shade-tolerant species than would occur under average historical conditions. The potential for large catastrophic fires and losses due to insects and diseases has increased.

Westslope cutthroat trout, a species of special concern, and bull trout, a threatened species, are found in the South Fork of Lost Creek. Impacts to these fish should be avoided by compliance with the SMZ rules and the "Immediate Actions for Bull Trout Recovery" agreed to by DNRC and the Governor's Bull Trout Recovery Team in 1994 and mitigations recommended by USFWS. Monitoring suggests that the water quality of the South Fork of Lost Creek has not been seriously affected by human activity.

TIMBER HARVEST GUIDELINES

Any timber harvest carried out under this proposal would incorporate guidance from the SFLMP Resource Management Standards, the Swan Valley Grizzly Bear Conservation Agreement (SVGBCA), Best Management Practices (BMP), Streamside Management Zone (SMZ) rules, Flathead Basin Commission recommendations, and other laws, rules and regulations.

DNRC adopted the SFLMP in 1996. The SFLMP outlines DNRC's management philosophy for State forested trust lands, and sets out specific Resource Management Standards for 10 resource categories. The SFLMP states:

> *Our premise is that the best way to produce long-term income for the trust is to manage intensively for healthy and biologically diverse forests. Our understanding is that a diverse forest is a stable forest that will produce the most reliable and highest long-term revenue stream.... In the foreseeable future, timber management will continue to be our primary source of revenue and our primary tool for achieving biodiversity objectives.*

Planning for the South Fork Lost Creek project started before the SFLMP was adopted, so implementation of the SFLMP was phased into the project as it developed. DNRC made all reasonable attempts to incorporate the philosophy and standards of the SFLMP into this project.

DNRC is committed to the provisions of the Swan Valley Grizzly Bear Conservation Agreement (SVGBCA). Beginning in December 1994, DNRC participated with the U.S. Fish and Wildlife Service (USFWS), Flathead National Forest (FNF), and Plum Creek Timber Company in the development of the SVGBCA (USFWS 1995b). The SVGBCA seeks to achieve cooperative management of grizzly bear habitat in the Swan valley where intermingled ownership patterns and differing land management objectives complicate habitat management for a species as wide-ranging as the grizzly bear. The South Fork Lost Creek project area is within the conservation area delineated in the SVGBCA. The agreement is summarized in Chapter 4.

PUBLIC CONCERNS

In December, 1994, DNRC solicited comments from the public on the proposed project. Subsequently, the public raised concerns about the potential impacts of the project on the environment. These concerns are discussed in Chapter 2 of the draft EIS, and were used in developing alternatives. Among the concerns most important to the public were the potential effects on grizzly bears and the character of old growth stands.

The proposed project would minimize impacts to grizzly bears through adherence to the SVGBCA.

Impacts to old growth would be minimized through compliance with the SFLMP, which specifies that DNRC would "seek to maintain or restore old growth forest in amounts at least half the average proportion that would be expected to occur with

natural processes on similar sites." The SFLMP also states, "Within an appropriate analysis area, DNRC would seek to maintain or restore old-growth forest in amounts of at least half the average proportion that would be expected to occur with natural processes on similar sites." Any harvesting under the proposed action would comply with these provisions.

ALTERNATIVES

DNRC's consideration of alternatives began in 1994 when the proposed action was developed. Public comments led to the development of the four alternatives discussed in the draft EIS: the no-action alternative and three timber-harvest alternatives. A fourth timber-harvest alternative was developed in response to concerns raised during the field tour that took place on June 16, 1999. The timber harvest alternatives are intended to emulate many of the ecological functions that would result from unsuppressed wildfire and other natural disturbances. The no-action alternative is included as a baseline for comparing the environmental consequences of the four timber harvest alternatives, and is considered a viable alternative for selection. Silvicultural treatments that would go with each timber-harvest alternative would be intended to promote natural patch sizes, shapes, connectivity, structural diversity and species composition. Mitigating measures common to all timber-harvest alternatives are outlined in Chapter 4 of the draft EIS. The silvicultural treatments that would be employed under the alternatives are described in Chapter 2.

No-action Alternative

ALTERNATIVE A

Alternative A is the no-action alternative. If this alternative were selected, no timber harvesting would occur in the project area. Land management activities, such as timber-harvesting, could be proposed and undertaken in the future following the appropriate level of MEPA review. Management activities, such as fire suppression and road maintenance would continue. Figure 2.1 shows the project area as it would continue to exist under Alternative A.

ALTERNATIVES B, C, D AND E

Guidelines

The following guidelines were used in the development of all of the timber-harvest alternatives:

- The alternatives would not harvest old-growth stands that have been identified as part of the old-growth network. See Chapter 3 for a discussion of the old-growth network.
- Long-term timber productivity would be maintained or enhanced.
- The natural role of wildfire in this area would be emulated through the application of silvicultural treatments to promote natural diversity of stand structure species composition.
- Proposed harvest units would be located adjacent to previously harvested units to create groups of young-age stands, similar to what would occur naturally due to wildfires.
- Road construction would be minimized by location of harvest units and use of logging systems that would require the least amount of road.

Road Management

All of the timber-harvest alternatives would include closure of a 1.7-mile segment of the South Fork of Lost Creek road in Sections 3 and 4 of T24N, R17W, where it is close to the South Fork of Lost Creek and presents a potential sediment source. The closed segment would be replaced with a new segment of about 1.7 miles, approximately 100-200 feet up-slope from the existing roadbed.

ALTERNATIVE B

Alternative B would harvest approximately 9.2 MMBF from 523 acres. It would require 1.3 miles of new road to provide access to units 5, 6, 7, 9 and 10 (Figure 2.2).

This alternative incorporates specific criteria developed to address public comments that the proposed project should maintain wildlife habitat, especially

for old-growth-associated species. These criteria were used in determining this alternative's harvest unit design, location and silvicultural treatments:

- Minimize harvesting in high quality old growth stands.
- Maintain wildlife corridors for north-south movement, and along riparian areas.
- Minimize harvesting in the largest blocks of old growth.
- Maintain old growth attributes in harvest units.

Thirteen harvest units are included in this alternative for a total of about 523 acres. Three silvicultural treatments—heavy-reserve, moderate-reserve, light-reserve —would be applied to these units (a thorough discussion of the methods and objectives of the silvicultural treatments follows the discussion of alternatives, later in this chapter).

ALTERNATIVE C

Alternative C would harvest approximately 10.9 MMBF from 607 acres. It would require 1.9 miles of new road to provide access to Units 2, 3, 6, 8 and 10 (Figure 2.3).

This alternative incorporates specific criteria developed to address public comments that the proposed project should maintain existing old growth. These criteria were used in determining this alternative's harvest unit design, location and silvicultural treatments:

- Target, as highest priority for harvesting, stands 149 years or less that have poor tree quality, poor vigor and/or exhibit major insect and disease problems.
- Consider, as a lower priority for harvesting, other stands 149 years or less that have higher tree quality vigor and/or may not exhibit insect and disease problems.
- Maintain an existing low elevation east-west wildlife travel corridor along the South Fork of Lost Creek.
- Maintain north-south wildlife travel corridors between lower and higher elevations within the project area.
- Maintain an existing low elevation north-south wildlife travel corridor on the west side of the project area.

Eighteen harvest units are included in this alternative for a total of about 607 acres. Three silvicultural treatments—heavy-reserve, moderate-reserve, light-reserve—would be applied to these units.

ALTERNATIVE D

Alternative D would harvest approximately 8.3 MMBF from 514 acres. It would require .6 mile of new road to provide access to Units 4 and 5 (Figure 2.4).

This alternative incorporates specific criteria to promote timber productivity in high risk, low vigor stands. These criteria were used in determining harvest unit design, location and silvicultural treatments:

- Harvest only within stands that have the highest risk of value loss through mortality, poor to very poor vigor, poor tree quality and/or exhibit major insect and disease problems.
- Apply silvicultural treatments that would contribute to optimizing future timber productivity within stands treated.
- Harvest priorities and silvicultural treatments would be modified to maintain wildlife travel corridors and contiguous blocks of old stands and old growth, to the extent timber productivity would not be overly compromised.

Eight harvest units are included in this alternative covering a total of about 514.3 acres. Three silvicultural treatments— heavy-reserve, moderate-reserve, light-reserve—would be applied to these units (a thorough discussion of the methods and objectives of the silvicultural treatments follows the discussion of this alternative).

ALTERNATIVE E

Alternative E would harvest approximately 3.5 MMBF from 254 acres. It would require .4 mile of new road to provide access to Unit 5 (Figure 2.5).

This alternative incorporates specific criteria to promote timber productivity and minimize impacts to wildlife and vegetation. These criteria were used in determining harvest unit design, location and silvicultural treatments:

- Provide an alternative that contributes to wider range of alternatives in the SEIS by reducing the volume to be harvested from Alternative D. (See Chapter 1.)
- Harvest within stands that have the highest risk of value loss through mortality, poor to very poor vigor, poor tree quality and/or exhibit major insect and disease problems.
- Apply silvicultural treatments that would contribute to optimizing future timber productivity within stands treated.
- Modify harvest priorities and silvicultural treatments to maintain wildlife travel corridors, further improve wildlife security, and maintain larger contiguous blocks of old-growth forest.

Four harvest units are included in this alternative covering a total of about 245.4 acres. Three silvicultural treatments— heavy-reserve, moderate-reserve, light-reserve—would be applied to these units (a thorough discussion of the methods and objectives of the silvicultural treatments follows the discussion of this alternative).

Permits Required to Implement the Project

1. A Stream Preservation Act Permit (124 permit) is required from DFWP for activities that could affect any fisheries stream.

2. A short-term exemption from Montana's Surface Water Quality Standards (3A Authorization) is needed whenever temporary activities introduce sediment above natural levels into live streams. This permit from the Montana Department of Environmental Quality (DEQ) would be needed for two bridge removals, replacement of a bridge on Cliff Creek, and some culvert installations.

SUMMARY OF ENVIRONMENTAL EFFECTS

The following table summarizes the environmental consequences of the alternatives. The scientific basis for the environmental effects summarized here is discussed in more detail in Chapter 4. Refer to Chapter 4 for a complete understanding of the terms, quantities, and statements presented here.

Table 2.5 Summary of Environmental Effects

RESOURCE	ALTERNATIVES				
	A	B	C	D	E
Forest Conditions					
1. Cover Type * Representation	Continued shift to shade-tolerant species; movement away from appropriate conditions	Increase shade-intolerant species by 236 acres; movement toward appropriate conditions	Increase shade-intolerant species by 309 acres; movement toward appropriate conditions	Increase shade-intolerant species by 142 acres; movement toward appropriate conditions	Increase shade-intolerant species by 14 acres; movement toward appropriate conditions
2. Age Class Distribution and Old Growth in Project Area	Overall increase in old growth over time; movement away from appropriate conditions	Old growth reduced by 130 acres; movement toward appropriate conditions	Old growth reduced by 103 acres; movement toward appropriate conditions	Old growth reduced by 200 acres; movement toward appropriate conditions	Old growth reduced by 4 acres; movement toward appropriate conditions
3. Old Growth Attributes					
3a. Structure	Over time, increase in uneven-age condition	Increase proportion of single-story old growth stands	Increase proportion of single-story old growth stands	Increase proportion of single-story old-growth stands	Negligible effect on old-growth stands
3b. Vigor	Over time, increase number of old-growth stands with poor vigor	Increase amount of old-growth stands at full vigor.	Increase amount of old-growth stands at full vigor.	Increase amount of old-growth stands at full vigor.	Decrease amount of old growth in poor vigor class
3c. Large Trees	Over time, the proportion of large trees will be reduced.	Reduces the proportion of old-growth stands with 'lots' of old trees.	Reduces the proportion of old-growth stands with 'lots' of old trees.	Reduces the proportion of old-growth stands with 'lots' of old trees.	Reduces the proportion of old-growth stands with 'lots' of old trees.
3d. Snags	In the short term, the amount of snags will increase; in the long term, large snags will decrease.	Reduces the proportion of old-growth stands with 'lots' of snags.	Reduces the proportion of old-growth stands with 'lots' of snags.	Reduces the proportion of old-growth stands with 'lots' of snags.	Reduces the proportion of old-growth stands with 'lots' of snags.
3e. Coarse Woody Debris	Over time, the amount of coarse woody debris will increase	Reduces the proportion of old-growth stands with 'lots' of coarse woody debris.	Reduces the proportion of old-growth stands with 'lots' of coarse woody debris.	Reduces the proportion of old-growth stands with 'lots' of coarse woody debris.	Slightly reduces the proportion of old-growth stands with 'lots' of coarse woody debris.

RESOURCE	ALTERNATIVES				
	A	B	C	D	E
3f. Volume	Over time, gross volume in old-growth stands would increase.	Increases the proportion of volume in lower volume classes in old-growth stands.	Increases the proportion of volume in lower volume classes in old-growth stands.	Increases the proportion of volume in lower volume classes in old-growth stands.	Increases the proportion of volume in lower volume classes in old-growth stands.
4. Replacement Old Growth	No development of replacement old stands	Harvests less than 18 acres of replacement age stands.	Harvests less than 18 acres of replacement age stands.	Harvests less than 18 acres of replacement age stands.	Harvests less than 18 acres of replacement age stands.
5. Stand Vigor	Shade-intolerant species crowded out; reduction in vigor over time. Vigor rating 2.69	390 acres raised to full vigor; 133 acres would inprove one vigor class. Vigor rating 2.46	456 acres raised to full vigor; 151 acres would improve one vigor class. Vigor rating 2.46	266 acres raised to full vigor; 248 acres would improve one vigor class. Vigor rating 2.49	18 acres raised to full vigor; 236 acres would improve one vigor class. Vigor rating 2.62
6. Patch Sizes by Cover Type in project area	Decreases below current patch size over time	Large decrease in patch sizes in mixed conifer types	Large decrease in patch sizes in mixed conifer types	Large decrease in patch sizes in subalpine fir types	Large decrease in patch sizes in subalpine fir types
7. Patch Sizes by Age Class in the project area	Increase in old-growth patch size over time	Decrease in average patch size of old growth stands by 55 acres	Decrease in average patch size of old growth stands by 10 acres	Decrease in average patch size of old growth stands by 25 acres	Old-growth patch size is unchanged
8. Patch Shape** by Cover Type in project area	Reduction in complexity of patch shape	Reduction in complexity of patch shape	Reduction in complexity of patch shape	Reduction in complexity of patch shape	Reduction in complexity of patch shape
9. Patch Shape** by Age Class in project area	Decrease in patch shape	No effect on complexity of patch shape	No effect on complexity of patch shape	Increase in complexity of patch shape	Increase in complexity of patch shape
T&E Species (Grizzly Bear)					
1. Open Roads (% entire subunit >1.0 mi/mi^2)	28%	25%	25%	25%	25%
2. Open Roads (% DNRC acres >1.0 mi/mi^2)	35%	32%	32%	32%	32%

RESOURCE	ALTERNATIVES				
	A	B	C	D	E
3. Total Roads (% entire subunit >2.0 mi/mi ^{2})	31%	31%	31%	31%	30%
4. Total Roads (% DNRC acres >2.0 mi/mi ^{2})	41%	42%	42%	41%	41%
5. Core Area) (entire subunit post harvest)	38%	39%	39%	40%	40%
6. Core Area (DNRC acres post harvest)	26%	26%	26%	29%	29%
7. Hiding Cover (entire subunit post harvest)	79%	79%	79%	79%	79%
8. Hiding Cover (DNRC acres post harvest)	80%	77%	77%	77%	79%
Big Game (Elk and Mule Deer)					
1. Habitat Effectiveness	75%	68%	70%	70%	71%
2. Thermal Cover (% of winter range, DNRC acres)	47%	39%	47%	36%	39%
3. Elk Security Cover (DNRC acres)	36%	30%	31%	30%	34%

RESOURCE	ALTERNATIVES				
	A	B	C	D	E
Aesthetics					
1. General landscape characteristics *** (Variety = landscapes which are object-rich; Contrast = the degree to which objects are distinguished form one another; Texture = distinctive or identifying feature of the landscape depending on distance	Change would continue due to natural processes. Character of landscape would remain the same.	Wild, rugged character would remain the same. Light and moderate-reserve treatments would increase variety and contrast. Heavy-reserve treatment would change texture, with subtle changes to variety and contrast.	Wild, rugged character would remain the same. Light and moderate-reserve treatments would increase variety and contrast. Heavy-reserve treatment would change texture, with subtle changes to variety and contrast.	Wild, rugged character would remain the same. Light and moderate-reserve treatments would increase variety and contrast. Heavy-reserve treatment would change texture, with subtle changes to variety and contrast.	Wild, rugged character would remain the same. Light and moderate-reserve treatments would increase variety and contrast. Heavy-reserve treatment would change texture, with subtle changes to variety and contrast.
Watershed					
1. Annual runoff South Fork Lost Creek Watershed	1% increase over natural runoff. (10% allowable increase)	3% increase over natural runoff. (10% allowable increase)	3% increase over natural runoff. (10% allowable increase)	3% increase over natural runoff. (10 % allowable increase)	2% increase over natural runoff. (10 % allowable increase)
2. Number of cutting units located within a SMZ.	None	None	None	None	None
3. Existing Sources of Sediment that would be mitigated.	Erosion sources not mitigated.	10.3 miles of road brought up to current BMPs, relocation of 1.7 miles of road currently located in SMZ, replacement of Cliff Creek bridge, rehabilitation of 2 bridges on S. Fork Lost Creek.	10.3 miles of road brought up to current BMPs, relocation of 1.7 miles of road currently located in SMZ, replacement of Cliff Creek bridge, rehabilitation of 2 bridges on S. Fork Lost Creek.	10.3 miles of road brought up to current BMPs, relocation of 1.7 miles of road currently located in SMZ, replacement of Cliff Creek bridge, rehabilitation of 2 bridges on S. Fork Lost Creek.	7.3 miles of road brought up to current BMPs, relocation of 1.7 miles of road currently located in SMZ, removal of Cliff Creek bridge, rehabilitation of 2 bridges on S. Fork Lost Creek.

RESOURCE	ALTERNATIVES				
	A	B	C	D	E
Air Quality					
	No change to existing air quality.	Burning on 523 acres: Temporary reduction in air quality.	Burning on 607 acres: Temporary reduction in air quality.	Burning on 514 acres: Temporary reduction in air quality.	Burning on 254 acres: Temporary reduction in air quality.
Soils					
1. Soil Erosion Potential from Road System	Erosion potential may increase on existing road system.	Decrease erosion potential by implementing mitigation.	Decrease erosion potential by implementing mitigation.	Decrease erosion potential by implementing mitigation.	Decrease erosion potential by implementing mitigation.
2. Soil Impacts: Displacement and Compaction	No change in existing compaction of the area in old skid trails and landings.	Mitigation would limit impacts to about 6% of the harvested acres. Approximately 33 acres would be affected	Mitigation would limit impacts to about 4% of the harvested acres. Approximately 26 acres would be affected	Mitigation would limit impacts to about 7% of the harvested acres. Approximately 36 acres would be affected	Mitigation would limit impacts to about 9% of the harvested acres. Approximately 22 acres would be affected
Sensitive Species					
1. Black-backed Woodpecker	Probability of creation of habitat would remain stable or increase with time, and acreage of potential future habitat would not change	Reduction in probability of creation of habitat, and reduction in acreage of potential future habitat by 523 acres	Reduction in probability of creation of habitat, and reduction in acreage of potential future habitat by 607 acres	Reduction in probability of creation of habitat, and reduction in acreage of potential future habitat by 514 acres	Reduction in probability of creation of habitat, and reduction in acreage of potential future habitat by 254 acres
2. Townsend Big-eared Bat	No change in communal or individual roost site availability	No change in communal roost site availability. Some decrease in availability of individual roost sites	No change in communal roost site availability. Some decrease in availability of individual roost sites	No change in communal roost site availability. Some decrease in availability of individual roost sites	No change in communal roost site availability. Some decrease in availability of individual roost sites

RESOURCE	ALTERNATIVES				
	A	B	C	D	E
3. Boreal Owls	No harvest would occur in boreal owl habitat; 19% of the project area would remain as boreal owl habitat	Harvest would occur on 221 acres of boreal owl habitat; 14% of the project area would remain as boreal owl habitat	Harvest would occur on 276 acres of boreal owl habitat; 13% of the project area would remain as borcal owl habitat	Harvest would occur on 131 acres of boreal owl habitat; 16% of the project area would remain as boreal owl habitat	Harvest would occur on 20 acres of boreal owl habitat; 19% of the project area would remain as boreal owl habitat
4. Fisher	No harvest would occur in preferred fisher habitat. Travel cover would remain available over most of the project area.	No harvest would take place in preferred riparian habitat. Travel cover would be reduced by 393 acres.	No harvest would take place in preferred riparian habitat. Travel cover would be reduced by 477 acres.	No harvest would take place in preferred riparian habitat. Travel cover would be reduced by 503 acres.	No harvest would take place in preferred riparian habitat. Travel cover would be reduced by 248 acres.
5. Lynx	No immediate changes in availability of foraging habitat; Project area in travel cover - 43%; Availability of denning habitat within project area- 22%.	No immediate changes in availability of foraging habitat, but will improve with successful regeneration; Project area in travel cover- 35%; Availability of denning habitat within project area- 20%.	No immediate changes in availability of foraging habitat, but will improve with successful regeneration; Project area in travel cover- 33%; Availability of denning habitat within project area- 20%.	No immediate changes in availability of foraging habitat, but will improve with successful regeneration; Project area in travel cover- 35%; Availability of denning habitat within project area- 17%.	No immediate changes in availability of foraging habitat, but will improve with successful regeneration; Project area in travel cover- 37%; Availability of denning habitat within project area- 21%.
6. Pileated Woodpeckers	No harvest would take place in Pileated habitat. No effects to the habitat.	Potential Pileated habitat would be reduced by 493 acres.	Potential Pileated habitat would be reduced by 475 acres.	Potential Pileated habitat would be reduced by 493 acres.	Potential Pileated habitat would be reduced by 239 acres.

RESOURCE	ALTERNATIVES				
	A	B	C	D	E
Economics					
1. Estimated Total Harvest Volume (MBF)	0.00	9,194	10,900	8,300	3,500
2. Estimated Stumpage Value ($/MBF)	0.00	$74	$49	$86	$60
3. Total $ Value – (Estimated Stumpage Value, FI cost and Development Cost times estimated harvest volume)	0.00	$1,447,228	$1,410,569	$1,422,703	$655,935
4. Total $ Revenue to the State (Estimated Stumpage Value + FI cost times estimated harvest volume)	0.00	$1,107,050	$1,039,969	$1,099,003	$372,435
5. Total $ Return to the Trust	0.00	$680,356	$534,100	$713,800	$210,000

*Indications of increased acreage refer to conditions after harvest and regeneration, either natural or by planting, or both.
**Numbers indicating patch shape refer to an index developed by McGarigal and Marks (1994). The lowest number, 1, refers to a perfectly square patch.
***As noted in the text, harvest units generally will be out of view of the public, or visible only at a distance.

DRAFT ENVIRONMENTAL IMPACT STATEMENT (EIS)

The draft environmental impact statement was prepared in compliance with the Montana Environmental Policy Act (MEPA). MEPA requires state government to include consideration of environmental impacts into its decision-making process. It also requires agencies to inform the public and other interested parties about proposed projects, environmental impacts that might result, and alternative actions that could achieve project objectives.

DNRC solicited public participation in the South Fork Lost Creek project on December 2, 1994, by distributing a project proposal to interested individuals, landowners, organizations, industries, and agencies. The proposed project also was advertised in the area's newspapers.

The mailing list for parties interested in the project is located in Appendix A of the SEIS.

DNRC evaluated the public comments and used many of them to develop alternative methods of achieving the proposed project. These alternatives, along with the no-action alternative and other information pertaining to the proposed project, were incorporated into the draft EIS, which was circulated to all those known to be interested. Comments were accepted for 30 days, and letters were received from the following groups/individuals:

Friends of the Wild Swan
Montana Wilderness Association
Steve Thompson
Steve and Sue Rolfing

FINAL EIS

After all the public comments on the draft EIS were received and evaluated, DNRC prepared a final EIS,

which consisted primarily of a revision of the draft EIS to incorporate new information based on public and internal comments. It also included DNRC's preferred alternative.

SUPPLEMENTAL EIS

On June 16, 1998, DNRC conducted a field tour of the South Fork Lost Creek project area. The field tour was intended to enable Land Board staffers to visit the project area and better understand the concerns of the informed public. During and following the tour, several concerns were raised by the public, the staffers, and DNRC personnel about sale, which led to the need to produce a Supplemental EIS (SEIS). An account of those concerns can be located in Chapter 1 and the project file. The SEIS was completed in accordance with ARM 36.2.533.

FINAL SUPPLEMENTAL EIS

In accordance with the Administrative Rules of Montana (ARM) 36.2.530, DNRC has decided to adopt the SEIS as the final SEIS, with all corrections, responses to comments, and additional information found in the South Fork Lost Creek SEIS errata. All issues raised by the public were either addressed in the SEIS, the responses to comments, or in the additional information that has been provided as part of the final SEIS errata; thus, DNRC felt that it was unnecessary to reproduce a full final SEIS. In an effort to be fiscally responsible, DNRC was able to reduce reproduction costs by approximately $1,000.

The comment letters received from the SEIS and DNRC's responses are included in section C of this Final SEIS errata. No substantial changes were made to the analysis contained in the SEIS. However, several editorial changes and corrections were made and are outlined in the final SEIS errata. Listed below is a summary of the most notable changes:

- Table 2.3 was modified to more accurately reflect logging unit methods.
- Cumulative impacts of the proposed action on bull trout were displayed more clearly in the final SEIS errata, so that they are more evident to the reader.
- Recent information regarding presence of wolves in the Swan valley was included.

PROPOSED DECISION

On June 16, 1998, DNRC conducted a field tour of the South Fork Lost Creek project area. During and following the tour, several concerns were raised by the public, the Land Board staff and DNRC personnel. These concerns led to the need for a Supplement EIS (SEIS). Alternatives from the FEIS were modified in the SEIS. A new alternative was also added to the SEIS to expand the range of volumes considered for harvest. An updated inventory of old-growth stands and identification of an old-growth network has been made to contribute to clarifying effects on old growth and that SFLMP old-growth commitments are being met. These changes to alternatives considered, additional analyses and clarification of effects contributes to the need for re-evaluating a proposed decision.

Substantial consideration has been given to changes in the effects of alternatives included in the Supplement EIS, the difference in effects between alternatives, comments received on field trips and written comments on the Draft EIS, Final EIS and Supplement EIS. Consideration has also been given to a suggested hybrid alternative that would combine elements of alternatives B and E. This hybrid alternative would generate a similar volume (approximately 3.2 MMBF) and similar revenue (approximately $236,480) as Alternative E. Just as Alternative E does not contribute as effectively to short-term return to the school trust as do other alternatives, neither does the suggested hybrid alternative. This hybrid alternative as well as other hybrid options considered, do not appear to effectively contribute to resolving larger concerns related to DNRC old-growth management strategies. The proposed decision is, therefore, not based on a hybrid option.

Selection of Alternative D along with mitigations common to all alternatives has been identified as the proposed decision. The advantages of

Alternative D over other alternatives is based primarily on Alternative D best meeting the project objectives. Differences in impacts to resources between harvest alternatives are relatively small.

PROJECT OBJECTIVES

The objectives of the South Fork Lost Creek Project have not changed from the FEIS even though the range of alternative ways to meet those objectives has been expanded in the SEIS.

A. MONETARY RETURN TO THE TRUST

Achieving the largest monetary return to the school trust in both the short term and long term remain of importance in identifying a preferred alternative. The highest, short-term revenue return to the School Trust would continue to result from Alternative D and would generate approximately $713,800. Alternative B would generate approximately $680,356 or 4.7 % less than Alternative D. Even though the margin of error in projecting monetary return may be greater than the difference between Alternative D and B, Alternative D appears to provide a slight advantage over Alternative B. Alternative C would generate 25 % less than Alternative D and Alternative E would generate 71 % less than Alternative D. Alternative C, and particularly Alternatives A and E, do not contribute as effectively to short-term return to the School Trust.

Stand vigor may contribute the most directly to maintaining and promoting monetary return to the School Trust through timber harvesting in the long term. Alternative D most effectively reduces the proportion of stands in the poor vigor class, post harvest. Stands with poor vigor generally have mortality rates that exceed growth rates and therefore would lose potential revenue to the School Trust in the future. The reduction of stands in the poor vigor class, in Alternative D, may contribute most effectively to meeting the objective of providing for the largest monetary return to the School Trust in the long term.

B. HISTORICAL FOREST CONDITIONS

The alternatives vary widely in regard to moving existing forest conditions toward desired, future conditions. The desired future conditions are based on maintaining a distribution and proportion of ecological characteristics similar to average historical conditions. These appropriate conditions would contribute to maintaining a healthy, sustainable, biologically diverse forest and promote long term, potential, monetary return to the School Trust.

All of the timber harvest alternatives contribute to moving towards average historical conditions for most of the characteristics analyzed. Each of the alternatives vary in the amount of movement towards appropriate conditions and in the characteristics that are most influenced. None of the timber harvest alternatives provide a clear advantage on overall movement for most characteristics.

Alternative A, the no-action alternative would maintain the forest in a condition furthest from the desired future condition and would contribute to further departure from appropriate conditions in the long term. Alternative A would therefore contribute least effectively to both short-term and long-term monetary return to the trust.

C. OLD-GROWTH ATTRIBUTES

Timber harvesting in old-growth stands will substantially alter old-growth attributes within stands that are treated. These attributes include stand structure, stand vigor, large trees, snag numbers, coarse woody debris and gross volume per acre. The proportion and distribution of old-growth attributes within the project area will vary between alternatives. However, the more appropriate scale for evaluating old-growth attributes is the SRSF. At that scale harvest effects on old-growth attributes are negligible. The analysis of old-growth attributes, therefore, do not provide a clear basis for identifying a proposed decision.

D. WILDLIFE EFFECTS

The analysis of effects on wildlife emphasize that a diversity of wildlife species also have a diversity of habitat needs. Any harvest treatment on any stand will have positive effects on some species while having negative effects on others. What may be more important than how individual species are affected at a stand level is that a diversity of habitat conditions is maintained in appropriate proportions and distributions across the SRSF. The Biological Diversity Guidelines contribute to maintaining appropriate proportions of stand conditions. Although each of the timber harvest alternatives moves the proportion of wildlife habitat characteristics toward appropriate conditions, none provide an overall advantage for most wildlife habitat characteristics.

The timber harvest alternatives were also modified after considering a SRSF old-growth network. The network contributes towards maintaining large patches of old growth, connectivity between patches of old growth and a diversity of old-growth structures. The old-growth network should contribute to maintaining a diversity of habitat for a diversity of wildlife species (refer to project file).

Several factors contribute to minimizing differences in effects on wildlife habitat; 1) target stand conditions based on average historical stand conditions; 2) development of alternatives around an old-growth network; and 3) wildlife mitigations common to all timber harvest alternatives. These factors contribute to minimizing differences in effects on wildlife between alternatives. The differences in effects on wildlife do not provide a clear basis for identifying a proposed decision.

As discussed above, Alternative A maintains and promotes forest conditions least similar to average historical conditions and is therefore least preferred.

E. SOILS

Although there are minor differences in effects on soils among alternatives, implementation of BMP=s would minimize adverse effects to soil from any of the timber harvest alternatives.

F. WATERSHED

The harvest activities proposed in all timber harvest alternatives would fully comply with BMP=s and the Montana SMZ law to minimize the risk of increased sedimentation from harvest units. Proposed restoration projects would lead to a net long-term benefit to water quality by stabilizing existing sources of sediment and improving surface drainage and potential for sediment delivery. Projections from the WATSED indicate water yield would increase from the 1 % existing increase over natural to 2% over natural for Alternative E and 3% over natural for Alternatives B, C and D. These temporary increases in water yield from all timber harvest alternatives are minor considering the allowable increase over natural is at 10 %.

G. FISHERIES

All proposed harvest alternatives present a low risk of impact to fisheries habitat. Short term increases in sedimentation may occur during road construction, road re-construction and implementation of other sediment reduction mitigations. As the sites revegetate and stabilize, there would be probable long-term benefits to fish habitat.

H. AIR QUALITY

Direct and cumulative effects of proposed burning in all timber harvest alternatives would not exceed limits defined by the Montana Cooperative Smoke Management Plan.

I. VISUAL QUALITY

Each of the timber harvest alternatives would have minor impacts on visual quality. It is not clear that overall, effects would be substantially different between harvest alternatives. Some alternatives would have a larger number of light reserve and moderate reserve harvest units. Other Alternatives have fewer but larger harvest units. Screening along roads would somewhat mitigate visual effects. The visual effects are acceptable in order to promote desired appropriate forest conditions.

J. RECREATION

All proposed timber harvesting alternatives would probably not eliminate any existing recreation opportunities.

NOTIFICATION OF DECISION

Following publication of the final SEIS, the Unit Manager of Swan River State Forest will review all of the information contained in the EIS and project file, including public comments. No sooner than 15 days after the publication of the final SEIS, the Unit Manager will consider and determine the following:

1. Do the alternatives presented in the final SEIS meet the project purpose?
2. Is the proposed mitigation adequate and feasible?
3. Which alternative should be implemented and why?

These determinations will be published in a decision notice/Record of Decision and distributed to all interested parties.

PROPOSED SCHEDULE OF ACTIVITIES

After the decision is published and if a timber harvest alternative is selected, a contract package would be prepared. The package would then be sent to the Land Board in the spring of 1999 for approval. If the Land Board approves, the timber sale would be advertised. If the timber is sold, then the following schedule applies:

SRSF proposes to sell timber from the proposed project in the spring of 1999. Timber harvesting and road construction/improvement work would begin in the summer of 1999 and be completed after April 1, 2000 during the grizzly bear denning season, November 16 through April 1, 2000, 2001, 2002. Planting and hazard reduction work would be completed within 2 years following completion of harvesting. Some activities would be restricted to certain periods of the year to avoid or reduce impacts (see chapter IV for mitigation information).

Final Supplemental Environmental Impact Statement for the Proposed South Lost Creek Timber Sale

INTRODUCTION

This document presents changes to the Supplemental Environmental Impact Statement (SEIS) for the South Fork Lost Creek Timber Sale. In accordance with the Administrative Rules of Montana (ARM)36.2.530, DNRC has decided to adopt the SEIS as the final SEIS, with all corrections, responses to comments and additional information found in the South Fork Lost Creek final SEIS errata. All issues raised by the public were either addressed in the SEIS, the response to comments, or in the additional information that has been provided as part of the final SEIS errata; thus, DNRC felt that it was unnecessary to reproduce a full final SEIS. This errata, in combination with the DEIS, the FEIS, the SEIS and the Supplemental Environmental Impact Statement Summary, constitutes the South Fork Lost Creek Final Environmental Impact Statement (FEIS).

This document consists of three sections:

A. Additions and errata to the SEIS, including the location in the SEIS where the additions or corrections occur.

B. DNRC's Proposed Decision

C. The text of the comments received, immediately followed by the DNRC response.

A. Additions and Errata to the SEIS

The following pages contain the additions and errata items pertaining to the SEIS. The location in the SEIS where additions or errata occur is identified in the left-hand column. The actual addition or errata is presented in the right-hand column. Except in the case where an entire page or section is added/ changed, the additions are printed in **bold** and the errata are printed in ***bold italics***.

SEIS PAGE
#/LOCATION
ADDITIONS/ERRATA

SUMMARY

PAGE S-2

1ST column, 2nd paragraph, change 1st and 2nd sentence to read - ***Westslope cutthroat trout a species of special concern and bull trout a threatened species are*** found in the South Fork of Lost Creek. Impacts to these fish should be avoided by compliance with the SMZ rules, the "Immediate Actions for Bull Trout Recovery" agreed to by DNRC and the Governor's Bull Trout Recovery Team in 1994 **and mitigations recommended by USFWS.**

PAGE S-3

2nd column, Road Management – All of the timber-harvest alternatives would include closure of a ***1.7*** mile segment of the South Fork ***of*** Lost Creek road in Sections 3 and 4 of T***24***NR17W , where it is to close to the South Fork of Lost Creek and presents a potential sediment source.

PAGE S-15

Notification of Decision, 1st paragraph, 1st sentence – Following publication of the ***final*** SEIS, the Unit Manager of the Swan River State Forest will review all of the information contained in the EIS and project file, including public comments. No sooner than 15 days after the publication of the final ***SEIS***, the Unit Manager will consider and determine the following.

1. Do the alternatives presented in the final **SEIS** meet the project purpose?

Proposed Schedule of Activities, 1st paragraph, second sentence – delete ***"winter or"*** from sentence.

Proposed Schedule of Activities, 2nd paragraph – SRSF proposes to sell timber from the proposed project in ***the spring of*** 1999. Timber harvesting and road construction/improvement work would begin in the summer of 1999 and be completed **after April 1, 2000 during the grizzly bear denning season, November 16 through April 1, 2000, 2001 and 2002.**

CHAPTER 1

PAGE 3

Table 1. 1 Public Scoping Schedule

Date	Formal Public Review
December 1998	Supplemental EIS was be available for public review
March 1999	**Final Supplemental EIS will be published**
April 1999	The Decision Notice, which identifies and provides a rationale for the selected alternative, will be issued.

PAGE 7

G. Proposed Schedule of Activies, 2nd paragraph – SRSF proposes to sell timber from the proposed project in ***the spring of*** 1999. Timber harvesting and road construction/improvement work would begin in the summer of 1999 and be completed **after April 1, 2000 during the grizzly bear denning season, November 16 through April 1, 2000, 2001 and 2002.**

CHAPTER 2

PAGE 13

I. Development of Alternatives, 2nd paragraph, 4th sentence – The alternatives that were developed for the FEIS were modified for the SEIS, and an additional ***timber-harvest*** alternative was developed for the SEIS to address concerns raised during the field tour held in June 1998.

II. Alternatives - include the following sentence: **Volumes for all timber harvest alternatives are net (MMBF).**

PAGE 15

B. Timber-Harvest Alternatives, Road Management, 1st sentence – All of the timber-harvest alternatives would include closure of a 1.7 mile segment of the South Fork **of** Lost Creek road in sections 3 and 4 of ***T24N***, R17W, where it is close to the South Fork of Lost Creek and presents a potential sediment source.

PAGE 23

Table 2.3 Alternative D Summary, replace with modified Table 2.3 –
(see opposite page)

PAGE 26

SILVICULTURAL TREATMENTS, Light-Reserve Regeneration Harvest, 2. Slash disposal and site preparation, 2nd and 3th sentences – On slopes less than **55** percent... On slopes greater than **55** percent

PAGE 28

Moderate-Reserve Regeneration Harvest, 2. Slash disposal and site preparation, 4th and 5th sentence – Both of these methods may be used on units where some slopes are greater than **55** percent and some less. Restricted access to portions of units with slopes less than **55** percent could preclude the use of machines to pile slash.

a) Site preparation for regeneration on slopes less than **55** percent
b) Site preparation for regeneration on slopes greater than **55** percent.

PAGE 29

2. Slash disposal and preparation of sites for regeneration, 2nd sentence – Slash disposal on slopes greater than 55 percent would be accomplished ***by either lopping and scattering or by yarding tops to the landing to be piled and burned.***

2. Slash disposal and preparation of sites for regeneration, 2nd paragraph - To prepare the site for regeneration, **on slopes less than 55 percent,** mineral soil would be exposed on 30 to 40 percent of the site. Scarification would be accomplished with the excavator-piler. Where patches groups and stringers of trees

ALTERNATIVE D SUMMARY						
UNIT #	TOTAL ACRES	TREATMENT	HARVEST METHOD	HARVEST VOLUME (MMBF) (NET)	SITE PREPARATION	REGENERATION METHOD AND SPECIES (*and/or)
2	10.2	Moderate Reserve	Tractor	228.3	Machine Pile & Scarification	Plant: PP
3	190.8	Heavy Reserve	Tractor & Cable	2,450.2	Machine Pile & Scarification	Natural or Plant: WL * WP
4	42.9	Moderate Reserve	Cable/ Soft Track	894.0	Broadcast Burn	Plant: WL * WP
5	45.6	Heavy Reserve	Soft Track	626.2	Machine Pile & Scarification	Natural or Plant: WL * WP
6	143.8	Light Reserve	Tractor/ Cable/Heli	2,675.7	Machine Pile & Burn & Broadcast Burn	Plant: WL * WP
7a	20.7	Moderate Reserve	Heli	494.5	Broadcast Burn	Plant: WL * WP, LP
7b	6.7		Soft Track		Machine Pile & Scarification	
9a	17.1	Moderate Reserve	Tractor	478.5	Machine Pile & Scarification	Plant: WL * WP
9b	11.8	Heavy Reserve				
10a	7.8	Light Reserve	Tractor	113.6	Machine Pile & Scarification	Plant: PP
10b	16.9		Heli	227.1	Broadcast Burn	
Total Acres Treated	514.3			8,265.9		

were removed, the soil would be scarified in randomly-spaced patches varying in size. **On slopes greater than 55 percent a 12 x 12 inch scalp would be required for each seedling planted.**

CHAPTER 3

PAGE 65

Table 3-20. Minimum Proportion of SRSF to Maintain as Old Growth Stands for each Cover Type -

PAGE 71

Cover Type	Appropriate Proportion of SRSF	1/2 Old Stand Percentage Losensky*	Percentage of SRSF to manage as old growth stands
Ponderosa pine	5.33%	37%	1.97%
Douglas-fir	1.48	3	0.04
Western larch/ Douglas-fir	41.62	23.5	9.78
Whitepine	26.43	8.5	2.25
Lodgepole pine	4.16	2.5	0.10
Mixed conifer	13.53	21.5	2.91
Subalpine	7.39	10	0.74
TOTAL	100		17.79

A. COARSE FILTER ASSESSMENT, 1) Overview, 3rd sentence – ~~Gray wolves (*Canis lupus*) are presently not known to occur on the SRSF, but they are likely to expand into the area in the near-term as recovery continues.~~

PAGE 77

b) Gray Wolf (Canis lupus), 2nd sentence – ~~At present, no wolves are known to occur in the Swan valley.~~

On March 10, 1999 I was made aware that several wolves had been relocated by the USFWS near the Swan Valley. On March 18, 1999, I contacted Ed Bangs (USFWS, Wolf Recovery Coordinator) and inquired about the relocation action and current wolf activity as it pertains to the South Fork Lost Timber Sale project area. The important points of our conversation are as follows.

Four radio-collared wolves (3 males and 1 young female) were relocated near Spotted Bear on January 20, 1999. They remained in that area for about one week and then split up and began to range widely. Recently, they have been traveling in the vicinity of Swan Lake and Echo Lake. No dens are known to occur and they are not expected to den this spring.

Mitigations: Ed Bangs commented that the only mitigation that they are currently recommending is to minimize all project-related activity near dens during the critical denning period (ie., from April 1 to June 30). Wolves have been observed to be very adaptable to other forms of human disturbance at other times of the year.

To address this concern, I suggest that the project leader coordinate communication efforts with myself and USFWS Wolf Recovery personnel between March 1 and March 15 each year to request current information on the whereabouts of possible den locations. This should be done each spring before harvest operations would commence to ensure that new dens are not overlooked and subsequently disturbed.

PAGE 79

d) Coeur d' Alene Salamander (Plethodon idahoensis), 5th sentence – No harvest activities would occur within at least 83 feet of these sites and habitat features and forest canopy would not be altered.

PAGE 80

i) Townsend's Big-Earred Bat (Plecotus townsendii) 4th paragraph, 1st sentence – To further promote conservation of this species, an amendment to the contract would be written for any timber-harvest alternative

PAGE 85

2nd colmun, 2nd paragraph, 3th sentence – During the analysis it was recognized that the N 1/2 of the SE 1/4 of section 3 (USFS ownership) ~~that falls within the project area~~ was an important link for maintaining connectivity of travel cover for fisher.

PAGE 88

2nd colmun, 2nd paragraph, 3th sentence – During the analysis it was recognized that the N 1/2 of the SE 1/4 of section 3 (USFS ownership) ~~that falls within the project area~~ was an important link for maintaining connectivity of travel cover for lynx.

PAGE 93

VI. WATERSHED, 2nd sentence – The South Fork of Lost Creek is a perennial tributary to the Swan River and drains 11,164 acres which includes the Cliff Creek drainage (***Figure 1.2***).

PAGE 96-97

VII. FISHERIES

C. CUMULATIVE EFFECTS TO BULL TROUT

Cumulative effects are defined as impacts that may result from the proposed action when combined with other past and present actions. Individually, these actions may not adversely affect bull trout habitat or populations, but when combined, present a higher risk of adverse impacts. Among other things, activities which have the potential to affect bull trout habitat and populations include road construction, especially where it is nearby or crossing a creek; and removal of live trees, which can lead to increased runoff and associated erosion of stream bed and banks.

Timber management has occurred in the South Fork of Lost Creek watershed since 1962. The timber harvest activities included construction of forest roads to access harvest units. The main road into the South Fork of Lost Creek watershed has some locations where it is adjacent to the creek. The condition and impacts associated with this road are described in the watershed section of the Supplemental EIS. The existing condition of the South Fork Lost Creek road presents a chronic source of fine sediment to the creek. Sediment currently enters the creek during the snowmelt period, and each time it rains. This sediment has a high potential to affect bull trout spawning habitat. Past management has also led to construction of several stream crossing structures which no longer meet current design standards, and are either an existing or potential source of fine sediment to the South Fork of Lost Creek. These structures are also described in the watershed section of the SEIS. Past timber harvesting in the South Fork of Lost Creek watershed has not increased water yields beyond any established threshold of concern, and no evidence of sediment delivery to a creek from a harvest unit is apparent in the watershed. The implications of water yield increases and sediment delivery from timber harvest is discussed in the watershed portion of the SEIS.

A Biological Assessment was completed by the Flathead National Forest in February of 1999 to assess the impacts of the proposed FRTA agreement for the South Fork of Lost Creek project. The Assessment states that all habitat components are functioning appropriately for bull trout in the South Fork of Lost Creek. The Biological Assessment also reports that there is a steadily increasing trend in bull trout spawning activity dating back approximately 15 years. This trend has also been reinforced by the habitat and population monitoring conducted by Montana DFWP in the South Fork of Lost Creek since 1994 (see table 3-27).

CHAPTER IV

PAGE 112

2. EFFECTS OF ALL ***TIMBER-HARVEST*** ALTERNATIVES ON NOXIOUS WEEDS, 5th paragraph, 2nd sentence – picloram would be applied at about ***1 pint*** per acre (0.12 gallon per acre of active ingredient).

PAGE 114

C. MITIGATION MEASURES COMMON TO ALL ***TIMBER-HARVEST*** ALTERNATIVES, 5th paragraph, 2nd sentence – Leave ***15 – 20*** tons of large woody debris for nutrient cycling and to maintain long term soil productivity.

PAGE 121

v) SVGBCA Provisions, 1st bullet – Any commercial timber harvest that would occur under any of the proposed alternatives would be scheduled for completion by April ***1***, 2000. If necessary harvest activities would also occur during the denning season.

PAGE 144

1. Effects Common to all Timber Harvest Alternatives, 2nd sentence – A 1.7 mile portion of the South Fork Lost Creek road would be permanently closed. ***1.3 miles of the roadbed would be rehabilitated.***

PAGE 147-148

VII. FISHERIES

C. CUMULATIVE EFFECTS TO BULL TROUT

The cumulative impacts of the proposed project to bull trout are closely related to the cumulative effects to the watershed. The proposed project would harvest timber from a range of between 254 and 607 acres, depending on the alternative. None of the proposed harvest units would be within 25 meters of an intermittent stream, or within 50 meters of a perennial stream. As discussed in the watershed section of the SEIS, 10.3 miles of existing road would be improved to meet current BMP standards, and 1.7 miles of existing road located within the South Fork Lost Creek SMZ would be permanently rehabilitated and relocated a minimum of 200 feet upslope. These activities may produce short term increases in fine sediment to the South Fork of Lost Creek during the period of operation. The proposal would likely lead to a long term reduction in fine sediment contribution to bull trout spawning gravel for the following reasons: 1) replacement of the existing South Fork of Lost Creek Road would eliminate a long term and chronic source of fine sediment to the creek, 2) several existing and potential sources of sediment at stream crossings would be either replaced or removed and rehabilitated, and 3) over 10 miles of existing road would be improved to meet all current BMPs.

In the Biological Assessment conducted by the Flathead National Forest, the impacts of the proposed project were analyzed. This Assessment analyzed water quality parameters, including Temperature, Sediment, and Chemical Contaminants/Nutrients. In the Sediment portion of the discussion, the Assessment found that the project proposal presents, "a *possibility* of increased fine sediments in a stream occupied by bull trout. (USFS, 1999)" Due to this possibility, the effects of the proposal may degrade the water quality. All potential degradation listed in the Biological Assessment is qualified by the statement that, "these are estimated to be minor affects and will not change environmental baseline function calls. (USFS, 1999)" This statement means that the sediment that may be generated is not expected to change the current function of bull trout habitat in the South Fork of Lost Creek. Substrate embeddedness and integration of species and habitat condition are also listed as potential degradation, and road density and location is listed as a short term degradation, but a long term restoration. These degradations carry the same qualification as that listed for sediment. All other parameters relating to water quality and bull trout are listed as either maintaining the current function, or restoring or improving function. The Biological Assessment goes on to state that there is no potential for incidental take as a result of the proposed project.

As stated in the watershed and fisheries portions of the SEIS, the cumulative impacts of the proposed South Fork of Lost Creek project should be a net benefit to water quality and associated bull trout habitat. The downstream cumulative impacts should, in turn, be a net improvement to the water quality and bull trout habitat in the Swan River and Swan Lake.

APPENDIX C

PAGE 181

APPENDIX C, replace with revised Appendix C –

Old Growth Attribute Assignments, Protocols and Effects on Old Growth

The codes listed below describe Snag and Large Live Tree combinations.

Code 0 = less then one snag per acre
Code 1 = 1 to 5 snags per acre
Code 6 = 6 to 10 snags per acre
Code 11 = 11 or more snags per acre

SNAGS

Lots =[6 snags or more at 21" or greater dbh] or [11 snags or more at 15 to 20 inch dbh] possible combinations: listing the 21"or greater dbh snag category first and the 15" to 20" dbh snag category second are *(6,0), (6,1), (6,6), (6,11), (11,0), (11,1), (11,6), (11,11), or (0,11), (1,11)*

Some = [1 to 5 snags at 21" or greater dbh] or [6 to 10 snags at 15"or greater dbh] possible combinations: listing the 21"or greater dbh snag category first and the 15" to 20" dbh snag category second are *(1,0), (1,1), (1,6), or (0,6)*

Few = [less than 1 snag at 21" or greater dbh] or [1 to 5 snags at 15" to 20" dbh] possible combinations: listing the 21"or greater dbh snag category first and the 15" to 20" dbh snag category second are *(0,1)*

None = [less than 1 snag at 21" or greater dbh and less than 1 snag at 15" to 20" dbh) possibe combinations: listing the 21"or greater dbh snag category, first and the 15" to 20" dbh snag category second are *(0,0)*

LARGE COARSE WOODY DEBRIS

DWOODSM = # small pieces (< 16") of CWD within a 300 - foot transect
DWOODLG = # large pieces (> 16") of CWD within a 300 - foot transect
CWDNEW = DWOODSM + (3 * DWOODLG)

Lots = CWDNEW ≥ 27
Some = CWDNEW ≥ 14 and <27
Few = CWDNEW ≥ 3 and <14
None = CWDNEW 0,1, or 2

LARGE LIVE TREES

Listing the # of trees in the (21" dbh or greater category), first, and the (17" dbh or greater category) second: all possible combinations are shown for each class.

Lots = (11, 11)
Some = (6, 11); (6, 6); (1, 11)
Few = (1, 6); (1, 1); (0, 11); (0, 6)
None = (0, 0); (0, 1)

B. PROPOSED DECISION

On June 16, 1998, DNRC conducted a field tour of the South Fork Lost Creek project area. During and following the tour, several concerns were raised by the public, the Land Board staff and DNRC personnel. These concerns led to the need for a Supplement EIS (SEIS). Alternatives from the FEIS were modified in the SEIS. A new alternative was also added to the SEIS to expand the range of volumes considered for harvest. An updated inventory of old-growth stands and identification of an old-growth network has been made to contribute to clarifying effects on old growth and that SFLMP old-growth commitments are being met. These changes to alternatives considered, additional analyses and clarification of effects contributes to the need for re-evaluating a proposed decision.

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Selection of Alternative D along with mitigations common to all alternatives has been identified as the proposed decision. The advantages of Alternative D over other alternatives is based primarily on Alternative D best meeting the project objectives. Differences in impacts to resources between harvest alternatives are relatively small.

PROJECT OBJECTIVES

The objectives of the South Fork Lost Creek Project have not changed from the FEIS even though the range of alternative ways to meet those objectives has been expanded in the SEIS.

A. Monetary Return to the Trust

Achieving the largest monetary return to the school trust in both the short term and long term remain of importance in identifying a preferred alternative. The highest, short-term revenue return to the School Trust would continue to result from Alternative D and would generate approximately $713,800. Alternative B would generate approximately $680,356 or 4.7 % less than Alternative D. Even though the margin of error in projecting monetary return may be greater than the difference between Alternative D and B, Alternative D appears to provide a slight advantage over Alternative B. Alternative C would generate 25 % less than Alternative D and Alternative E would generate 71 % less than Alternative D. Alternative C, and particularly Alternatives A and E, do not contribute as effectively to short-term return to the School Trust.

Stand vigor may contribute the most directly to maintaining and promoting monetary return to the School Trust through timber harvesting in the long term. Alternative D most effectively reduces the proportion of stands in the poor vigor class, post harvest. Stands with poor vigor generally have mortality rates that exceed growth rates and therefore would lose potential revenue to the School Trust in the future. The reduction of stands in the poor vigor class, in Alternative D, may contribute most effectively to meeting the objective of providing for the largest monetary return to the School Trust in the long term.

B. Historical Forest Conditions

The alternatives vary widely in regard to moving existing forest conditions toward desired, future conditions. The desired future conditions are based on maintaining a distribution and proportion of ecological characteristics similar to average historical conditions. These appropriate

conditions would contribute to maintaining a healthy, sustainable, biologically diverse forest and promote long term, potential, monetary return to the School Trust.

All of the timber harvest alternatives contribute to moving towards average historical conditions for most of the characteristics analyzed. Each of the alternatives vary in the amount of movement towards appropriate conditions and in the characteristics that are most influenced. None of the timber harvest alternatives provide a clear advantage on overall movement for most characteristics.

Alternative A, the no-action alternative would maintain the forest in a condition furthest from the desired future condition and would contribute to further departure from appropriate conditions in the long term. Alternative A would therefore contribute least effectively to both short-term and long-term monetary return to the trust.

C. Old-Growth Attributes

Timber harvesting in old-growth stands will substantially alter old-growth attributes within stands that are treated. These attributes include stand structure, stand vigor, large trees, snag numbers, coarse woody debris and gross volume per acre. The proportion and distribution of old-growth attributes within the project area will vary between alternatives. However, the more appropriate scale for evaluating old-growth attributes is the SRSF. At that scale harvest effects on old-growth attributes are negligible. The analysis of old-growth attributes, therefore, do not provide a clear basis for identifying a proposed decision.

D. Wildlife Effects

The analysis of effects on wildlife emphasize that a diversity of wildlife species also have a diversity of habitat needs. Any harvest treatment on any stand will have positive effects on some species while having negative effects on others. What may be more important than how individual species are affected at a stand level is that a diversity of habitat conditions is maintained in appropriate proportions and distributions across the SRSF. The Biological Diversity Guidelines contribute to maintaining appropriate proportions of stand conditions. Although each of the timber harvest alternatives moves the proportion of wildlife habitat characteristics toward appropriate conditions, none provide an overall advantage for most wildlife habitat characteristics.

The timber harvest alternatives were also modified after considering a SRSF old-growth network. The network contributes towards maintaining large patches of old growth, connectivity between patches of old growth and a diversity of old-growth structures. The old-growth network should contribute to maintaining a diversity of habitat for a diversity of wildlife species (refer to project file).

Several factors contribute to minimizing differences in effects on wildlife habitat; 1) target stand conditions based on average historical stand conditions; 2) development of alternatives around an old-growth network; and 3) wildlife mitigations common to all timber harvest alternatives. These factors contribute to minimizing differences in effects on wildlife between alternatives. The differences in effects on wildlife do not provide a clear basis for identifying a proposed decision.

As discussed above, Alternative A maintains and promotes forest conditions least similar to average historical conditions and is therefore least preferred.

E. Soils

Although there are minor differences in effects on soils among alternatives, implementation of BMP=s would minimize adverse effects to soil from any of the timber harvest alternatives.

F. Watershed

The harvest activities proposed in all timber harvest alternatives would fully comply with BMP=s and the Montana SMZ law to minimize the risk of increased sedimentation from harvest units. Proposed restoration projects would lead to a net long-term benefit to water quality by stabilizing existing sources of sediment and improving surface drainage and potential for sediment delivery. Projections from the WATSED indicate water yield would increase from the 1 %

existing increase over natural to 2% over natural for Alternative E and 3% over natural for Alternatives B, C and D. These temporary increases in water yield from all timber harvest alternatives are minor considering the allowable increase over natural is at 10 %.

G. Fisheries

All proposed harvest alternatives present a low risk of impact to fisheries habitat. Short term increases in sedimentation may occur during road construction, road re-construction and implementation of other sediment reduction mitigations. As the sites revegetate and stabilize, there would be probable long-term benefits to fish habitat.

H. Air Quality

Direct and cumulative effects of proposed burning in all timber harvest alternatives would not exceed limits defined by the Montana Cooperative Smoke Management Plan.

I. Visual Quality

Each of the timber harvest alternatives would have minor impacts on visual quality. It is not clear that overall, effects would be substantially different between harvest alternatives. Some alternatives would have a larger number of light reserve and moderate reserve harvest units. Other Alternatives have fewer but larger harvest units. Screening along roads would somewhat mitigate visual effects. The visual effects are acceptable in order to promote desired appropriate forest conditions.

J. Recreation

All proposed timber harvesting alternatives would probably not eliminate any existing recreation opportunities.

C. *RESPONSES TO COMMENTS*

Steve Thompson
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January 29, 1999

Mr. Glen Gray
Swan River State Forest
Swan Lake, MT 59911

Dear Mr. Gray:

Thank you for the opportunity to comment on the SEIS for the South Fork Lost Creek timber sale proposal.

I have reviewed the materials you sent me on July 15, 1998 in addition to the SEIS. I continue to have several concerns related to the old growth analysis.

A-1 As I will detail below, I feel the old growth analysis remains legally and substantively flawed. However, I also recognize the narrow window of opportunity for doing anything in South Lost in the next decade and your legitimate desire to do something this year. Therefore, I will suggest a reasonable and realistic action plan that could proceed while the bigger policy issues are resolved in a different forum.

The development of Alternative E is welcome, although I hope it won't be an empty gesture. Given your short window of activity and the difficulty of removing 8 MMBF by April 15, 2000, especially given the vagaries of weather these days, Alternative E is the only logical choice. Alt. E restricts impacts to the lower reaches of the watershed, thus minimizing the greater uncertainties and risks associated with the roadwork, bridgework and logging impacts in the upper reaches.

Instead of Alt. E, however, I would like you to consider selecting a hybrid alternative, combining elements of B and E. Delete Unit 3, which is high-quality old growth and provides important wildlife habitat and movement corridors on the south side of a riparian corridor that has been heavily impacted on the north side. Instead, I urge you to replace units 3 and 5 in Alt. E with units 3, 4 and 5 in Alt. B.

A-2 **The new old growth definition** - The SEIS changes the definition of "old growth" from the definition used in the FEIS and, more significantly, the state forest plan. This new definition is based on the state's new "Biodiversity Implementation Guidance," issued in May 1998 as programmatic direction for managing old growth. Without any NEPA analysis or public involvement, the legally established state forest plan's old growth policy was arbitrarily reinterpreted to mean "we are managing for 1/2 of old stands (BIO-33).". The only current avenue to challenge this major policy shift is through this and other site-specific timber sales.

Steve Thompson (1/29/99)

A-1

Thank you for your comments on the SEIS. I appreciate your interest in proceeding with a reasonable and realistic action plan while continuing to work towards resolving bigger policy issues regarding DNRC's old-growth management guidelines. I hope that responses to your old-growth concerns, that are included within this letter, help to clarify potential misunderstandings and work toward resolving those concerns. I look forward to working together in the future to further refine old-growth management strategies on the Swan River State Forest.

I agree that given a short window of activity, harvesting 8 MMBF by April 1, 2000 would provide greater risks and uncertainties. I believe, however, that the roadwork, bridgework and harvesting of high elevation units could readily be accomplished within this window. The remainder of the harvest activities could occur after April 1, 2000 during the grizzly bear denning season November 16 through April 1, 2000, 2001 and 2002. Logging during the winter season would avoid conflict with grizzly bears and the Swan Valley Grizzly Bear Conservation Agreement.

I have given considerable consideration to your proposal of selecting a hybrid alternative that combines elements of alternatives B and E. I have also explored options of modifying alternative D and/or combining elements of alternatives B, D and E to resolve concerns that have been raised. For the reasons described in the record of decision, I believe alternative D, as described in the SEIS would best meet SFLMP standards and project objectives.

A-2

We disagree that any substantive change has occurred in how we view or define old growth. We have consistently adhered to the notion of old growth existing without clear thresholds, but rather as containing a continuum of attributes.

The DNRC defines old growth in two steps. The first is the 'conceptual definition' presented in the SFLMP: Old growth refers to forested areas that are in the later stages of stand development. They are *generally* dominated by relatively large old trees, contain wide variation in tree sizes, exhibit some degree of multi-storied structure, have signs of decadence such as rot and spike-topped trees, and contain standing snags and large down logs.

A-2

The programmatic state forest plan was approved in 1996 after considerable public input. I spent a good chunk of time on this plan myself. Only in the last several weeks have I realized that the promises being made to the public in that document have been broken through a secretive process that did not include public input, at least as far as I know. I have been one of the Montana citizens most involved in state forestry issues, and this programmatic policy change was made and implemented without my knowledge.

Indeed, DNRC's notion of old growth is a moving target, which is trending in the direction of identifying non-old growth stands as old growth, while targeting the finest old growth for logging. *DNRC currently is using no less than four definitions of old growth in various programmatic documents.* No wonder I've been confused, and no wonder the recent analyses for Beaver Lake, Cyclone Coal and South Lost have been so convoluted. Quite simply, I suggest the only legal definition is the one used in the state forest plan. The others all should be discarded pending a MEPA-legal programmatic revision.

I certainly feel there are legitimate logging opportunities through each of these three timber proposals, but DNRC is spinning wheels and wasting valuable resources with its current approach. Public trust and agency credibility may be at an all-time low. Given the close scrutiny I and others have applied to DNRC's old growth policy, it's rather mind-boggling that the problem is being compounded rather than resolved.

Let's examine DNRC's moving definitions of old growth.

The 1996 State Forest Land Management Plan defines old growth as: *Forest areas that are in the later stages of stand development. Old-growth forests are generally dominated by relatively large old trees, contain wide variation in tree sizes, exhibit some degree of multi-storied structure, have signs of decadence such as rot and spike-topped trees, and contain standing snags and large down logs. Specific criteria for identifying old growth vary by environment and forest type.*

The December 1998 Beaver Lake DEIS defines old growth as: "*Stands that are 150 years and older (140 for lodgepole pine) and that exhibit a range of structural attributes associated with old age. The term old growth generally include relatively large old trees, containing wide variation in tree sizes, exhibiting some degree of multi-storied structure, having signs of decadence, such as rot and spike-topped trees, and containing standing large snags and large down logs.*

In contrast, the December 1998 South Lost SEIS define old growth as: "*Stands that are 150 years and older (140 for lodgepole pine) and that exhibit a range of structural attributes associated with old age, and that contain a minimum of 4 MBF per acre net.*"

Finally, the November 1998 Cyclone Coal FEIS uses the shortest, most generic definition of all: "*Stands that are 150 years and older (140 for lodgepole pine) and*

The conceptual definition is augmented with a 'working definition' as follows: Old growth is defined by the DNRC as stands that are 150 years and older (140 for lodgepole pine), contain a minimum of 4Mbf net per acre, and exhibit a range of structural attributes associated with old age.

We developed a working definition of old growth because conceptual definitions do not lend themselves to quantification of old growth and hence to assurances that we were meeting our commitments. We acknowledge our working definition is 'minimal' in regard to old growth attributes and so analyze stand by stand old growth characteristics at the project level to ensure something does not slip through the cracks.

A-2 *that exhibit a range of structural attributes associated with old age."*

The key differences between the forest plan definition and the newer ones include: 1) the latter definitions are dominated by age rather than characteristics; 2) the latter definitions says old growth often **includes** large, old trees while the former definition says old growth is generally **dominated** by large, old trees; 3) Both definitions include a list of structural attributes associated with old age, but the latter definition (at least as applied in the Beaver Lake EIS) suggests the actual presence of old growth characteristics are optional, 4) the forest plan definition states that old growth are areas that are in the later stages of stand development, while the latter definitions include stands that have been set back from their later stages of stand development by past highgrade logging that diminishes old growth characteristics.

This definition goes further, as outlined in the Biodiversity Implementation Guidelines. There we learn that historic old growth supposedly included stands that had no decadence, no snags, no large trees and no large down woody debris (Bio-33). In fact, we're told, the early forest surveyors even included as old growth (or old stands) stands that had as little as 4 MBF per acre, or about 8 medium-sized larch (Bio-34). Or at least the Biodiversity Guidelines say that surveyors included 4 MBF stands as old growth. Reading Losensky 1997, I see that the surveyors classified cover types based on a minimum of 4 MBF, but I don't see that they explicitly classified old stands with such low volume within those vegetative groups.

The state forest plan allows DNRC to update Remington's Biological Diversity Strategies paper, which was to be used to designate and manage old growth, with professional review. The plan does not seem to allow a major change in definition of old growth, however. If the Biological Guidelines represents that update, please provide documentation of the professional review, including substantive comments received. Would these professional reviewers agree, for example, that 57 percent of the Beaver Lake area is occupied by old growth forest? Please forward their comments to me.

The South Lost rejects the argument that these new programmatic definitions "allows(s) many stands to be identified as old growth that have little or no old growth attributes. The data tells a different story (SEIS, p. 5)." Oh yeah? I refer the Swan River State Forest to see how its sister forest on the Stillwater "allows(s) many stands to be identified as old growth that have little or no old growth attributes."

I don't see any evidence that the South Lost area has old stands that are as structurally deficient as the Beaver Lake "old growth," but I do note that significant areas of old growth have been impacted by past harvest (SEIS 63) on the Swan River State Forest and the South Lost area, and that old growth attributes in these stands have been reduced through the effects of timber harvest. Yet, inexplicably, the May 1998 biodiversity guidelines states that "we assume that the existing distribution of old growthedness in old stands is roughly equivalent to that which existed historically. So, within a project area or within stands proposed for harvest we quantify or assess

A-2 qualitatively the characteristics of importance and retain post harvest distributions equivalent to those that existed pre-harvest (BIO-11)." Nevertheless, the SEIS appears to contradict this policy by targeting some of the highest-quality old growth in Alt. D. The SEIS states that 281 acres logged in South Lost would continue to be old growth, although old growth characteristics would be seriously diminished in these remnant stands.

A-3 **Historical estimates of old growth -** Briefly, there are a number of problems with the analysis of historic vs. current old growth distribution. Losensky's cover type and age class analysis is based on a snapshot it time, the 1930s, which significantly coincided with the end of the region's most severe 50-year drought and fire intensity period in the past 500 years. (See Barrett, Arno and Menakis, "Fire episodes in the Inland Northwest, 1540-1940, based on fire history data," October 1997, USFS Intermountain Research Station GTR-370.) The 1930s snapshot data appears to be set in an historical anomaly.

A-4 The historical analysis also fails to accept the common-sense argument that the Swan River State Forest historically had more old growth than the much broader climatic section due to conditions created by the microclimate, topography and physiography. The SEIS argues that one portion of the 1930s snapshot data, cover types, is more important than the age class data (p. 6), concluding that this simplistic assessment "supports the fact the growing conditions (disturbance regimes, climate, soils topography, etc.) on the SRSF are not unique." This latter claim is flatly contradicted by the Flathead National Forest's Amendment 21 FEIS, which, using multiple sources of historic information rather than an anomalous snapshot, finds that the Swan Valley historically did have more old growth than other areas in the so-called upper Flathead

A-5 Another problem with using Losensky report for the old growth analysis is the undue weight attached to the so-called white pine cover type, which basically includes anything that included some small amount of white pine. This classification might have made sense for economic reasons in the 1930s, but it doesn't make sense for any scientific reasons today. Historically, according to the SEIS, only 17 percent of white pine stands were old growth, whereas today 62.7 percent of white pine stands are old growth, although less of the forest is occupied by the white pine cover type today. In contrast, we're told, the Swan now has 874 acres of western red cedar cover types whereas only 123 acres were in the red cedar cover type in the 1930s. This latter statistic is proffered on SEIS p. 53 to back the broader contention that the South Lost project area and SRSF as a whole have become heavily skewed to shade-tolerant species cover types. In other words, we're told, the South Lost drainage should be much more dominated by shade intolerants. This is a manufactured argument, however, that ignores Steve Barrett's fire history analysis, which refutes this notion that the South Lost project area is out of whack with unnatural succession by shade-tolerant species.

A-6 And what about the sudden emergence over the past 60 years of old-growth cedar-dominated stands that are older than 200 years in South Lost where the SEIS says

A-3

The summaries of the 1930s inventory completed by Losensky (1997) treat the concerns expressed explicitly by applying overall age class distribution to recently burned areas, and applying the broad scale averages for mature and old stands to the recently harvested areas. Thus, the effects on age class structure that can be attributed to the drought, fires, and logging that occurred are removed.

A-4

We stand by our analyses that indicate the SRSF is not unique except for the older age class structure indicated by the 1930s inventory. Our analyses provide evidence that the cause is simply the random nature of disturbance rather than any biophysical uniqueness of the SRSF. Regarding your reference to the FNF's Amendment 21, please review the response under A-7.

A-5

We disagree that the white pine type is not ecologically significant. According to Pfister et al (1977) white pine occurrence was largely limited to warm or cool and moist sites of western Montana. These sites also correspond well to where grand fir grows in association with western red cedar and western hemlock. Recent estimates suggest the white pine type has been reduced to less than 5% of its former dominance, or that approximately 5,000,000 acres of appropriate white pine type are currently dominated by other species.

We agree with the commenter that the 1930s inventory can be problematic when looked at for correspondence in conditions at the small scale. We point out anomalies simply so the concerned public does not take things out of context.

A-6

Regarding the cedar stands and whether or not succession is influencing the species representation we see that western larch is relatively well represented in the over story of every stand, but not in the mid- or under-story of any of them. This indicates that succession is having an effect on species mix. We have to rely on the data when conducting analyses and in this case it supports that succession has and is changing the composition of the cedar stands in question.

A-6 there were none in the 1930s? In fact, this appears to be a species argument to justify the claim on p. 53 that the wet, lethal fire regimes in South Lost exemplify the broader regional trend of unnatural dominance by shade tolerants. Steve Barrett assures me that the cedar dominated old growth today was also dominated by cedar in the 1930s. Perhaps a minor white pine component resulted in its misleading classification in the 1930s. Or, perhaps the sampling procedure in the 1930s was simply too broad to capture the actual occurrence of cedar-dominated old growth. This apples and oranges comparison does not prove the argument of shade tolerant succession; rather, it illustrates the house of cards the argument is based upon.

A-7 I disagree with this blanket statement that "no estimates of historic amounts of old growth are available (SEIS 40)." I refer you to the Flathead National Forest's Amendment 21 EIS, which utilizes numerous sources to determine historic amounts of old growth. The FNF used various reconstructive study techniques to produce an overall conclusion about historic distributions of old growth. In general, their use of seral stages (early, mid and late) of three terrestrial community groups (subalpine, montane and lower montane) seems a more appropriate analysis method than the use of static vegetative cover typing captured at a single point in time earlier this century.

Unfortunately, the Biodiversity Guidelines' reference to the ICBEMP regional assessment completely ignores that documents estimates of historic amounts of old growth in the Northern Glaciated Mountains ERU. Instead of baldly stating that no such estimate exists, DNRC should have looked into the Columbia River Basin Succession Model (CRBSUM) as well as CRBSUM2 and FIREPAT, both of which provide detailed information about natural fire patterns. CRBSUM, developed b y Bob Keane, provides excellent estimates of the natural structural characteristics of old stands. Similarly, the state should have sought to mesh its old growth policies with the Flathead National Forest's state-of-the-art old growth amendment. The failure to incorporate or adequately consider these regional assessments seems to violate state forest plan directives. Mr. McLeod's December 7, 1997 letter to the Flathead National Forest does not appear to meet the forest plan's direction to "pursue cooperative planning with major adjoining landowners."

DNRC has claimed that it must use "old stand" data rather than stand attribute criteria because there is no way of knowing the historical attributes of old growth stands. In addition to CRBSUM, DNRC might want to consult the following references:

* Arno, S. F., E. D. Reinhardt, and J. H. Scott. 1993. Forest structure and landscape patterns in the subalpine lodgepole pine type: A procedure for quantifying past and present conditions. USDA For. Serv. Gen. Tech. Rep. INT-294.

*Arno, S. F, J. H. Scott, and M. G. Hartwell. 1995. Age-class structure of old growth ponderosa pine/Douglas-fir stands and its relationship to fire history. USDA For. Serv. Res. Pap. INT-RP-481.

*Arno, S. F., H. Y. Smith, and M. A. Krebs. 1997. Old growth ponderosa pine and

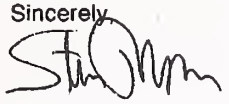
A-7

References to the FNF Amendment 21 must be made with the realization that modeling does not produce a measurement of historic conditions, but simply a modeled prediction. Actual measurements of historically occurring old growth, complete with quantification of attributes is extremely unlikely to ever be available. Your letter refers to the Flathead National Forest's (FNF) Amendment 21 as indicating our approach is inadequate. The range the FNF has determined for old growth, depending on type, is 15% to 60%. Thus, our determination falls near the average they have estimated. The modeled upper range estimate for late seral forest (subalpine – 10%, montane – 22%, and lower montane – 9%) from Amendment 21 (p. 44) in the Swan Valley Subbasin shows that about *41 percent* was modeled as being old. DNRC's appropriate condition for old growth on the SRSF (stands ≥ 150 years old, with 4 Mbf net) shows that about *36 percent* of the SRSF should be in an old condition. In accordance with the SFLMP, DNRC manages for _ the appropriate condition, which means that DNRC is managing for 18 percent old growth on the SRSF. See pages 63 to 65 in the SEIS for more information.

A-7 western larch stand structures: Influences of pre-1900 fires and fire exclusion. USDA For. Serv. Res. Pap. INT- RP-495.

A-8 Given the ongoing problems and inconsistencies with DNRC's old growth protocol, I reiterate my earlier suggestion that you scale back the expectations of what can be realistically accomplished in the South Lost project area in the next 14 months. I hope you will seriously consider the proposed hybrid alternative I suggest above. Otherwise, it's possible that nothing will happen in South Lost for quite a while.

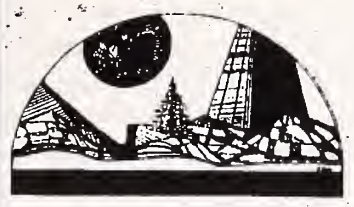
Sincerely,



Steve Thompson

A-8

I hope the responses to your comments have helped to resolve your concerns. I hope that you find proceeding with Alternative D in the short term is a reasonable and realistic action plan as we continue to work together to improve future management on the Swan River State Forest. Thank you for your continued interest.



FRIENDS OF THE WILD SWAN
P.O. BOX 5103
SWAN LAKE, MT 59911

January 29, 1999

Swan River State Forest
Attn: Glen Gray
Swan Lake, MT 59911

Dear Glen:

Please accept the following comments on the South Fork Lost Creek Supplemental Environmental Impact Statement (SEIS) on behalf of Friends of the Wild Swan. To begin, we found that the SEIS contains vast, unexplained discrepancies from the Draft and Final EISs on many issues, or simply failed to address issues and comments raised by the public and the Land Board in prior comments and on the field tour in June, 1998.

B-1 GENERAL COMMENTS

1) The analysis for Alternative D is a volume of 8.266 million board feet (MMBF) on 514 acres when in actuality DNRC is planning to cut just over 11 MMBF. This is over 2.7 MMBF difference that is not disclosed in your EIS!

B-2 2) Unit #6 will still be logged eventhough it is evident that at the high elevation past cutting units are growing at such a slow pace that it will take hundreds of years to produce any merchantable timber. Please disclose how this provides any long-term benefit to the school trust.

B-3 FISHERIES

1) Once again the SEIS does not disclose exactly what will be done with the existing South Lost Creek Road. Based on information from the field tour in June 1998 we can only assume that the road will not be permanently or hydrologically obliterated, but will be made impassable and left in place to deteriorate into South Lost Creek. Another road will be built upslope on sensitive soil types. From a terrestrial species standpoint you may consider blockading the road to be sufficient (we do not) but from a watershed standpoint you are increasing road densities and road impacts on a bull trout spawning stream.

The U.S. Fish and Wildlife Service's Bull Trout Interim Conservation Guidance (Dec. 1998) states, "Bull trout are less likely to use streams in highly roaded areas for spawning and rearing and where found in highly roaded areas are less likely to be at strong population levels. Bull trout strongholds in ther Interior Columbia River Basin showed a very strong (P=0.0001) negative correlation with road densities. ...Although some variability in these patterns was apparent the association was strong, suggesting that bull

Friends of the Wild Swan (1/29/99)

B-1

There is no real difference between the 8.266 million board feet and 11 million board feet that you refer to as far as the analysis is concerned.. Both volume estimates represent the same trees. The 8.266 million board feet is an estimate of **net** volume. The 11 million board feet is an estimate of **gross** volume. Gross volume is the amount of volume in the same trees as those represented by the 8.266 million board feet estimate, but there is no accounting for defect. Defect is the timber cruiser's estimate of how much of the gross volume cannot be sawed into lumber. It is usually estimated as a percentage of the gross volume by species.

Prospective purchasers of the proposed sale are not as interested in the gross volume as they are in the merchantable volume that would actually be removed (Net Volume). The net volume is also the pertinent volume used to project economic effects and return to the school trust fund. For these reasons, net volumes have been reflected within the DEIS, FEIS and SEIS. The analysis of effects has been based on proposed acres to be harvested and specific harvest prescriptions rather than a net volume of approximately 8.3 MMBF versus a gross volume of approximately 11 MMBF. Approximately 50 percent of the difference between the net volume and gross volume, or approximately 2.7 MMBF, would be left on site and contribute to maintaining large woody debris to benefit wildlife and promote nutrient recycling.

B-2

The old harvest units adjacent to Unit 6 in Alternative D were harvested in the1960s. These old harvest units, at an elevation of 5,600 to 6,000 feet, are now moderate to well stocked. These seedling and sapling stands are showing good vigor (vigor class 2) and are projected to be growing at a rate of 103ft^3/acre/year. I do not agree that it will take hundreds of years to produce merchantable timber from these old harvest units or from Unit 6 with an elevation of 5,400 to 5,800 feet. These older, adjacent harvest units should contain merchantable timber in another 50 years.

B-3

The proposal to reclaim and permanently close the South Lost Creek Road, and the anticipated impacts of this activity were reported in the SEIS, page 144 and 147. More site specific details of the planned rehabilitation can be found in the road log in the project file, the contract for the South Fork Lost Creek Timber Sale, or in the

B-3 trout are exceptionally sensitive to the direct, indirect, or cumulative effects of roads."

We are not arguing that the current South Lost Creek road is in a good location, or in good shape. However, abandoning this road and building another is not the solution.

B-4 2) The SEIS once again does not disclose the timing of road work being done on the old South Lost Creek road, building a new South Lost Creek road in addition to the work to remedy problems from past management (bridge removals, slumps, etc.). Given the time constraints to have this area logged by the end of 1999 we suspect all this work will be done at the same time next summer. The impacts of these all these ground disturbing activities coupled with logging occurring at the same time will increase sediment into South Lost Creek. These significant effects to bull trout and westslope cutthroat trout are not analyzed or considered in the DEIS. This is a major effect on a bull trout spawning stream that was given no attention in the FEIS or the SEIS eventhough it had been raised in written comments and at the field tour last June. Bull trout are now listed as a Threatened species under the Endangered Species Act and destruction of habitat is a "taking" under the Endangered Species Act.

While the bridge removals may be considered "mitigation" they still have a cumulative effect from operating equipment in the stream and from sediment that may enter the stream from the fill behind the bridges. There needs to be a thorough cumulative effects analysis of the bridge removals, new road construction and the continued existence of the existing unmaintained South Lost Creek road on bull trout and bull trout habitat. South Lost Creek contains exotic brook trout which could have a competitive advantage over bull trout if the stream is degraded with increased sediment from these activities.

B-5 3) The DEIS discloses the severe erosion, gullies and mass failure problems from the road and old cutting unit skid trails in the Cliff Creek drainage. The DEIS also contains a laundry list of current problems caused by past management, bridge failures, road erosion, etc. and proposes that a new timber sale is needed in order to fix problems caused by past management. **FIX PROBLEMS FROM PAST MANAGEMENT BEFORE INFLICTING MORE DAMAGE ON THE ECOSYSTEM!!** The revolving door of inflicting damage on the watershed from projects then supposedly "fixing" them accompanied by inflicting more damage from more projects must end.

B-6 4) The SFLMP states that, "all proposed fisheries and land management activities in drainages containing bull trout should be reviewed and modified to have **no negative impact to bull trout.**" (SFLMP ROD-27, emphasis added) Additional sedimentation whether in the short term or long term is a negative impact to bull trout.

South Lost Creek is a core bull trout spawning stream. Core areas are defined as "drainages that currently contain the strongest remaining populations of bull trout. These watersheds need to have the most stringent

FRTA package prepared with the US Forest Service. With this permanent closure and rehabilitation, erosion control would be established, compaction would be alleviated where appropriate, grass seed would be applied, and vegetation would reestablish over time. The South Lost Creek Road is currently contributing sediment to the creek on an annual basis. Erosion control measures proposed under all timber harvest alternatives would reduce this erosion.

According to the US Fish and Wildlife Service's Bull Trout Interim Conservation Guidance (Dec. 1998), "Roads should be relocated out of floodplains where feasible. Road mileage for new harvest units should be minimized; roadless areas should remain roadless and should be harvested by other means where possible." This publication also states that land owners should, "Identify and repair, remove, or relocate specific roads that intercept ground water, and surface water, and detrimentally affect floodplain function," and, "Identify and repair, remove or relocate roads that negatively affect riparian processes (vegetative cover, LWD, particulate organic matter input, hydraulic processes)." Each of the action alternatives proposes to accomplish these recommendations through replacement of the existing road, locating it out of the riparian area, and by actively eliminating poorly designed and failing crossing structures, and through bringing all roads up to current BMP standards.

B-4

The timing of the proposed work on bridges is disclosed in the approval of the Stream Preservation Act (124) permit issued by the Montana Department of Fish, Wildlife and Parks. A copy of the application and approval can be found in the project file. The approval contains stipulations and specifications required to implement the project including timing of activity and site specific mitigation measures to be implemented which will minimize the sediment introduced during the removal of bridges. Proposed site specific mitigation measures by the DNRC can be found in the contract. A 3A authorization has also been granted by the Montana Department of Environmental Quality for all of the proposed rehabilitation sites.

According to the contract, approximately 40 cubic yards of fill material will be removed with each bridge rehabilitation. This would result in a net decrease in sediment of 80 cubic yards which will eventually be washed down the creek if not removed by machinery. With the closure of the existing South Fork Lost Creek Road, a reduction of sediment would be immediate over the existing condition.

The existing road currently delivers sediment to the creek during every spring snowmelt, and every time it rains. Due to the location of the existing road, it is impossible to eliminate the sediment delivery with the road open to traffic. The new road would be located approximately 200 feet upslope, have a gravel surface to reduce the surface erosion rates, have all applicable BMPs and erosion control installed, and have a minimum 200 foot vegetative filter. As a result, there would be no sediment delivery to the South Fork of Lost Creek from the new road. The net cumulative impact of these activities, as reported in the SEIS (pages 144 and 147), would be a net reduction in sediment to the South Fork of Lost Creek, which in turn would result in a net reduction of sediment to Swan Lake.

B-5

The DNRC commitment to application of all BMPs is stated in the SEIS, pages 144, 147, 155 and 158. This commitment is also noted in the SFLMP Record of Decision on pages 18 and 21. According to policy of the DNRC, and in accordance with the Best Management Practices for Forestry in Montana (1997), all roads would be maintained in accordance with all applicable BMPs prior to use for any forest management activity. This means that all problems on existing roads would be repaired prior to any hauling.

B-6

According to the SFLMP ROD, page 27 states that having "no negative impact to bull trout," is accomplished through, "implementation of the Immediate Actions, BMPs, SMZ Law, 124 permits, MEPA analysis and interdisciplinary design." The South Fork Lost Creek project was designed using each of these criteria as a minimum, and in many cases has surpassed these minimums.

The WATSED model was developed for use in Region 1 of the USDA Forest Service which includes the Flathead National Forest. The precipitation data, stream response to snowmelt, and vegetative hydrologic recovery databases used in the model are all developed locally by site specific data. The data used in the South Fork Lost Creek model run were obtained in cooperation with the Flathead National Forest, and are applicable to the South Fork of Lost Creek watershed. The DNRC agrees with the contention that WATSED is a model, and with the assessment of the appropriate uses of a model, as stated in the SEIS, page 145. The WATSED results were used as an approximation of anticipated consequences when compared to other alternatives, including the No Action Alternative. These results were interpreted along with field observations of channel stability conditions, upslope watershed conditions, and with a detailed sediment source survey on upland and in-channel sites (SEIS, pages 93-94).

The analysis for bull trout is found on pages 96-97 and 147-148 of the SEIS. The existing conditions for bull trout habitat and populations is presented in table 3-27 of the SEIS, which clearly shows an increasing trend for spawning and habitat quality in the South Fork of Lost Creek. The anticipated impacts to bull trout populations due to the proposed project are directly related to sedimentation levels. On page 147 of the SEIS, the sedimentation portion of the water quality analysis is referenced, and the anticipated impacts to fish habitat are discussed. As stated, "These activities would lead to short term increases in sedimentation during construction. As the sites revegetate and stabilize, there probably would be a long-term benefit to fish habitat by the elimination of long-term and chronic sources of sediment." (SEIS, page 147) The DNRC feels that the proposed activities are consistent with the SFLMP direction.

B-6 levels of protection." (Swan River Drainage Bull Trout Status Report, Montana Bull Trout Scientific Group, February 1996) This status report also lists forestry as a very high risk to conservation of bull trout in the Swan River drainage. Yet the EISs have devoted minimal analysis to bull trout relying heavily on the WATSED model which has severe limitations. WATSED was developed for a different area and doesn't do a very good job for this area. WATSED is also a model. Models are developed for two reasons 1) to formalize your thinking and 2) to create scenarios. They should not be used as a predicting tool.

SOILS

B-7 1) Discrepancies between the Draft EIS and the FEIS/SEIS on soil productivity and erosiveness remain unresolved. The soils section was completely changed with no explanation.

B-8 2) Alternative D has cutting units on Landtypes 73, 75 and 76. The Flathead National Forest Plan describes Landtype 75 as "not capable of commercial timber management, surface occupancy or permitted domestic livestock use due to the steepness of slope, exposed rock and lack of soil." Landtype 73 and 76 hazard reduction and site preparation is expensive due to steep slopes, south slopes have low vegetative productivity and are difficult to revegetate.

B-9 3) We find it disingenuous for DNRC to propose soil mitigations such as snow cover and frost depth which are then waived when it is expeditious to do so. The Middle Soup Timber Sale had these same soil mitigations but DNRC allowed Plum Creek Timber Company to begin logging operations eventhough there was no snow and the ground was not frozen. Mitigations do not protect the resource if they are ignored or purposefully waived. The public and the Land Board assume that mitigations will be followed, if you have no intention of following them then do a proper analysis of the impacts, do not cloak your analysis in mitigations.

WATERSHED EFFECTS

B-10 1) Effects of increased sedimentation on Swan Lake were not analyzed in any of the EISs. Swan Lake is a high priority for a Total Maximum Daily Load under the Clean Water Act. Any increase in sediment to South Lost Creek ultimately winds up in Swan Lake which currently has an oxygen deficit in the summer caused by organic matter entering the lake from the Swan River. This oxygen deficit has been linked to logging and logging practices (Butler, et. al., 1995). It is crucial that any increase in sediment in South Lost Creek be analyzed in its relationship to Swan Lake.

B-11 2) Throughout the EISs DNRC has relied on BMPs to mitigate effects. Please disclose what monitoring has been done for each BMP and how effective the BMP actually was at protecting water quality and fisheries.

B-7

The discrepancies between the soils interpretations in the DEIS and FEIS/SEIS were discussed and explained both in the FEIS, page D-4 – response A-6, and were also addressed directly at the field tour of the South Fork Lost Creek project area on June 16, 1998.

B-8

Both landtype mapping units LT 75 and LT 76 have a high percentage of exposed bedrock and shallow soils on steep slopes. Landtype 75 has more rockland that is low site productivity. Both mapping units include up to 20% contrasting soils, which are deeper loamy glacial till soils that support higher productivity vegetation types and trees suitable for timber harvest. It is these included sites with deeper soils that exhibit better regeneration potential and are proposed for timber harvest based on site specific review for unit location. Alternative D would implement mitigation measures to minimize soil impacts, retain coarse woody debris for nutrient cycling and promote regeneration of site adapted trees.

B-9

On page 114 of the SEIS, it states that, "Mechanical harvesting operations would be conducted when soil is
adequately dry, frozen or snow covered to minimize rutting and displacement." The intent of this
mitigation measure, as stated, is to mitigate the impact of operating heavy equipment on soils, reducing or
eliminating displacement and compaction. Falling of trees by chainsaw would not create compaction or
displacement on soils regardless of the season of use. The DNRC stands by its mitigation and
administration of timber sale contracts to protect soil resources from adverse compaction and displacement.

B-10

According to the contract, approximately 40 cubic yards of fill material will be removed with each bridge rehabilitation. This would result in a net decrease in sediment of 80 cubic yards which will eventually be washed down the creek if not removed by machinery. With the closure of the existing South Fork Lost Creek Road, a reduction of sediment would be immediate over the existing condition. The existing road currently delivers sediment to the creek during every spring

B-12 3) We were unable to find any Watershed Analysis in the EISs or the project file for South Lost Creek. WATSED is a model, it is not a watershed analysis.

B-13 GRIZZLY BEAR

1) The Swan Valley Conservation Agreement does not dismiss DNRC from analyzing the cumulative effects of logging, additional road building and disruption of habitat to the grizzly bear. While the EISs pay lip service to cumulative effects the contents are empty of any analysis. The following concerns remain unanswered:

B-14 a) The Biological Opinion (BO) for the SVCA admits that "core areas are limited and restricted to higher elevations; no functional core habitat exists at lower elevations" (BO page 23). Yet the DEIS does not disclose elevationally where the core area is in the subunit, how it is affected, or whether it is adequate.

B-15 b) The Fish and Wildlife Service believes that displacement of grizzly bears and under-use of habitat currently occurs, and expects that this would continue" (BO page 23). What is DNRC doing to remedy this?

B-16 c) "High road densities in lower elevations may continue to preclude the establishment of home ranges by (successful reproducing) adult females" (BO page 24). What is DNRC doing to remedy this?

B-17 d) "Blocks of core habitat of sufficient size to be functional are absent at lower elevations . . . and would remain absent under the terms of the agreement." (BO page 25) What is DNRC doing to remedy this?

DNRC should most certainly be directly addressing these problem areas in their MEPA analysis. Perhaps if DNRC had been submitting annual monitoring reports to the U.S. Fish and Wildlife Service for the past three years as it has been required to do these problems could have been resolved.

B-18 2) Habitat effectiveness for grizzly bear is not addressed. The biological opinion on the SVCA, at 16, notes that habitat effectiveness for the South Fork Lost Soup subunit is 63, 62, 64, 47, and 89% for early spring, spring, summer, autumn and denning, respectively. On page 15, the BO notes that, while no habitat effectiveness thresholds have been established yet, several subunits "have habitat effectiveness values of approximately 60 percent or less, indicating relatively high levels of impacts caused by people." The DEIS provides no adequate discussion of habitat effectiveness as a means to assess cumulative effects. It appears that the subunit is/was borderline in all non-denning seasons and extremely "substandard" during the autumn season. There is no information in the DEIS indicating why the subunit is in such poor shape during autumn or habitat effectiveness changes per alternative.

B-19 3) Once again in the SEIS we see analysis drastically altered with no explanation. Existing total road densities (entire subunit >2 mi/sq mi) were 45% in the FEIS and now in the SEIS are 31%. Where did those roads go? Total roads on DNRC ownership (>2 mi/sq mi) decreased from 54% in the FEIS to 41% in the SEIS. Hiding cover decreased from 91% in the FEIS (DNRC

snowmelt, and every time it rains. Due to the location of the existing road, it is impossible to eliminate the sediment delivery with the road open to traffic. The new road would be located approximately 200 feet upslope, have a gravel surface to reduce the surface erosion rates, have all applicable BMPs and erosion control installed, and have a minimum 200 foot vegetative filter. As a result, there would be no sediment delivery to the South Fork of Lost Creek from the new road. The net impact of these activities, as reported in the SEIS (page 144), would be a net reduction in sediment to the South Fork of Lost Creek, which in turn would result in a net reduction of sediment to Swan Lake from the existing condition.

Projected water yield increases would remain well within established thresholds of concern. Thresholds are developed to establish the point at which adverse effects to channel stability may result from increases in water yield. The cumulative impacts of the proposal in conjunction with all past and planned activities are presented in the SEIS, pages145-147.

B-11

Monitoring of BMPs is conducted on a statewide basis biannually by interdisciplinary teams. These teams represent a cross-section of state and federal agencies, private industry, independent consultants, conservation organizations, and other volunteers (1998 Forestry BMP Audit Report). The audits were conducted in 1990, 1992, 1994, 1996, and 1998. Each of these reports shows the effectiveness of each individual BMP for each year of audits conducted. The effectiveness is presented based on a total of all sites audited, and also by ownership, where the effectiveness for DNRC activities can be evaluated.

B-12

The watershed analysis for the South Fork Lost Creek project can be found in the SEIS, pages 93-95, and 144-146. These pages outline the methods and findings of channel stability, watershed conditions in the riparian and upslope areas, and a sediment source inventory of in-channel, upper slope, and road related sources.

B-13

Cumulative effects relating to grizzly bears are disclosed in Chapter IV, Section B. 1) a) x) (p. 126 of the SEIS). All DNRC actions in the recent past, during the time period covered in this EIS, as well as planned future activities that have proceeded past the scoping stage, are disclosed. Effects are disclosed in terms changes in open and total road densities, amount of security core area, and hiding cover. The Swan Valley Conservation Agreement (SVCA) does not alleviate the need to assess cumulative effects, but it does form the best available framework for limiting and disclosing such effects.

B-14

The effects of each Alternative on grizzly bear security core areas are presented in Chapter IV, Section B., 1), a) ix), p. 124 of the SEIS. Figure 4-11 presents a map of changes in grizzly bear security core area as a result of each Alternative. This section also discloses the level of increase in acreage within security core under each Alternative. Grizzly bear security core habitat is defined clearly in the Glossary as well as in the SVCA; further discussion of "effects" to security core (beyond its amount and location) are not meaningful or useful. Figure 4-11 does not include topographic contours, which would be necessary to provide a full description of elevations where core exists, will be removed, and will be added. However, Figure 4-11 does include sufficient detail to allow the interested reader to juxtapose the location onto existing topographic maps.

As noted, the Biological Opinion (BO) for the SVCA notes that core areas are limited and restricted to higher elevations. The BO further recommends (p. 44) that allowable roads within security core areas be clearly marked with signs (indicating that motorized use is prohibited during the non-denning period), in addition to their being barriered, and that the number of such roads be minimized. It does not specifically recommend or require that core areas on DNRC lands be increased, or located in any particular elevation zone.

The question of "adequacy" of core areas is not clearly defined. The BO accepts that the provisions included in the SVCA , while resulting in incidental take, are not likely to result in jeopardy to the species (p. 41). Included in those provisions is Management Guideline (f) (i), in which DNRC agreed to contribute those areas set forth in Attachement C as core areas. Thus, as long as DNRC abides by the terms of the SVCA, core areas are deemed to be adequate.

B-15

As disclosed in the SEIS (p. S-7, 122), the proportion of both the entire sub-unit and DNRC lands within in it that exceed open road densities of 1 mi/mi^2 decrease under all action Alternatives. Similarly, the proportions that exceed total road densities of 2 mi/mi^2 remain essentially unchanged under each action Alternative. Security core area is projected to increase slightly under most action Alternatives. Further, by strictly adhering to the Management Guidelines of the SVCA and the Conservation Recommendations of the BO, DNRC expects to fulfill all currently mandated actions related to grizzly bear conservation in the Swan Valley.

B-16

As disclosed in the SEIS (p. S-7, 122), the proportion of both the entire sub-unit and DNRC lands within in it that exceed open road densities of 1 mi/mi^2 decrease under all action Alternatives. Similarly, the proportions that exceed total road densities of 2 mi/mi^2 remain essentially unchanged under each action Alternative. Security core area is projected to increase slightly under most action Alternatives. Further, by strictly adhering to the Management Guidelines of the SVCA and the Conservation Recommendations of the BO, DNRC expects to fulfill all currently mandated actions related to grizzly bear conservation in the Swan Valley.

B-17

Security core area is projected to increase slightly under most action Alternatives. Further, by strictly adhering to the Management Guidelines of the SVCA and the Conservation Recommendations of the BO, DNRC expects to fulfill all currently mandated actions related to grizzly bear conservation in the Swan Valley.

As noted above, all these issues are addressed in the SEIS.

Reports on monitoring of the SVCA are a joint responsibility of all parties; they are part of a requirement to the USFWS, and are separate from MEPA requirements. Individual reports from each Party are not required or recommended.

B-18

As noted above, cumulative effects are disclosed in Chapter IV, Section B. 1) a) x) (p. 126 of the SEIS). This particular analysis uses analytical framework laid out in the SVCA and its associated BO. It does not include an optional discussion of habitat effectiveness, as did some earlier DNRC MEPA documents relating to nearby projects. Particular tools used in a cumulative effects analysis are discretionary, unless specifically mandated by other laws. The SVCA does not require or recommend specific management actions or disclosure methods regarding habitat effectiveness. We note, parenthetically, that the biologist who performed the previous analyses of habitat effectiveness tragically passed away prior to completion of these MEPA documents.

B-19 acres) to 80% in the SEIS. Why is there such a discrepancy in the existing situation?

4) The baseline of 28% Open Road Density is dependent upon a closure
B-20 implemented under the Middle Soup Timber Sale. Please disclose whether the roads slated for closure with the Middle Soup Timber Sale will still be implemented or adjust your road density analysis.

B-21 ECONOMICS

1) The SEIS did not use the most recent timber price information which was available in early December 1998 but instead chose to use a 1996 Log Price Report. Two years ago log prices were higher. Using the outdated prices skews your economic analysis to appear that you will make more money from this timber sale then is actually the case. This is deceptive, dishonest, arbitrary and capricious!

B-22 2) How will all the road construction costs be handled? Is it reflected in numbers for this timber sale only? Or are there other future undisclosed actions contemplated to justify the large investment in a new road for South Lost Creek?

B-23 OLD GROWTH MANAGEMENT

1) The analysis of historical and current old growth in South Lost Creek project area and SRSF is unreasonably difficult to understand, extremely arbitrary, and has been contested by agency personnel.

The DNRC has employed an arbitrary methodology to estimate historical old growth in order justify management for lower amounts of old growth habitat on the SRSF.

The EIS notes that the SRSF Land Management Plan (SFLMP) requires that managers seek to maintain or restore old growth forests in amounts at least half the average proportion that would be expected to occur with natural processes on similar sites. Page 53 of the EIS notes that in the 1930s inventory, 74% of the SRSF existed as old stands. Instead of using the actual levels of old growth for the SRSF, the agency instead "extrapolated" from a much larger area, called the Climatic Section. Coincidentally, this Climatic Section contained only an average of 29% old growth in the 1930s. By using data from outside the SRSF, the agency was able to drastically reduce the level of old growth required for management.

The rationale for the DNRC substitution of Climatic Section data for local SRSF data from the 1930s time period is not clear. It would seem that the SRSF data would be a much more accurate reconstruction of historical conditions than results derived from a much larger landscape, including areas with different climatic regimes. The questionable nature of this substitution was also noted by DNRC employees as well. In a letter to the South Lost ID team dated November 20, DNRC employee Jane Adams indicates she believes that the best information available for estimating historical old growth on the SRSF is in fact local data. Adam's contention is

B-19

The SEIS was at fault in not fully explaining why the estimates of the current proportion of the subunit (and its DNRC portion) differ from those disclosed in the FEIS. Under the algorithm used to produce this estimate in the FEIS, roads that been bermed were to be counted as part of the road system (i.e., a 'total road') until such time as they had been fully re-vegetated. This is the system in use until recently by the Flathead National Forest. In 1998, the IGBC clarified their intent, such that roads that had been physically bermed, do not function as a road, and are not intended to function as a road long-term are no longer to be considered part of the total road system for this calculation. Some roads on DNRC lands included in the map used to produce the estimate disclosed in the FEIS qualified for exclusion under the 1998 clarification, and thus were omitted from the map used to produce the SEIS estimates.

The reported hiding cover percentages in the FEIS were in error and have been corrected in the SEIS.

B-20

Road closures committed to earlier have been accomplished. The current conditions disclosed in the SEIS reflect on-the-ground conditions at the time of publication.

B-21

The recent past stumpage market has been volatile. The volatility has impacted our ability to estimate current and future stumpage value(s). Estimating future stumpage values is much an art as it is a science. The models that are used to estimate a stumpage value are based on the past and/or averages thus the results should be compared with current information and professional judgement and adjusted when appropriate. As stated in the SEIS page 152, # 15, "the estimates of return are estimates intended for relative comparison of alternatives. They are not intended to be used as absolute estimates of return." The following memo is the project file that documents why and how we estimated the stumpage value by alternative.

B-23 that the unique site conditions created by the microclimate, topography, and physiography on the SRSF were responsible for historically high levels of old growth, possibly up to 85%. She notes that by using climatic section averages rather than local data for estimates of SRSF old growth, old growth estimates will decline from 15,157 to only 7,034 acres (a difference of 8,123 acres).

2) The EIS evaluates historical old growth by cover type definitions

B-24 which appear to be highly subjective.

The EIS tries to identify historical levels of old growth by cover type, which appears to lend a considerable level of subjectivity to the analysis. In her letter of November 20, 1998, DNRC employee Jane Adams noted that they are unable to match current and historic cover type definitions, which casts doubt on the usefulness of the 1930's data. If matching of cover type data between historical and current times were being used to improve the quality of historical old growth estimations, this analysis may be justified as an added appendix for interested publics. However, it appears that the results from this analysis simply creates more questions than answers about historical old growth levels, and may be counter-productive in the general text of the EIS. Worse, as is noted by Adams, it appears that the analysis of cover types is being used as a justification to reduce estimates of historical old growth on the SRSF.

B-25 3) The DNRC fails to provide clear, concise criteria for old growth, so that the management goals and impacts remain ambiguous in the EIS; the definitions of old growth are arbitrary.

It is never really clear in the EIS as to what constitutes old growth habitat. Although page 40 of the EIS defines old growth as stands over 150 years in age, this criteria actually does not appear to have been consistently applied in the analysis. For example, both Tables 3-25 and 3-10 show the SRSF to contain about 46% old growth habitat. Yet both estimates use different methodologies to derive this level of old growth. One (Table 3-25) uses stands over 100 years in age to derive old growth, while the other (Table 3-10) uses only stands over 150 years to derive old growth. Both estimates cannot be correct. It appears that the claims that at least in some cases, old growth estimates include stands down to 100 years in age, or stands which are clearly not old growth. Adams, in her letter of November 20, 1998 to the DNRC ID team, notes that even the use of 150 years for a minimum threshold of old growth is too young. Her claim is consistent with both historical estimates of old growth, where stands had to be up to and over 200 years in age to be considered old growth, and Forest Service criteria for old growth by Green et al. (1992) where most old growth types of mixed conifer forests are at least 180 years in age.

Although the Forest Service criteria by Green et al. (1992) do not contain minimum criteria for basal area, they do provide summaries of average basal areas for characteristic old growth stands which can be used to help identify old growth. These guidelines also provide summaries of average levels of snags and defective trees in old growth. As such, these

TO: South Lost Project File
FROM: Will Wood
SUBJECT: Estimated Stumpage Value
DATE: 1/6/99

Due to the current uncertainty in the timber market today estimating the future stumpage value is difficult. To calculate the estimated stumpage price for the South Lost EIS, I used the most recent transaction evidence equation and two sets of delivered log prices and logging costs, using the residual value method. The estimated value from the transaction evidence equation produced estimates that were to high given recent sales, the short time frame for the sale completion, past lawsuits, and steep slopes. The most recent estimates for delivered log prices and logging costs yielded stumpage values that we felt were to low and therefore were not used in the SEIS. The original log prices and logging costs from the FEIS produced estimates that Bill Schultz and I thought were the most reasonable, and subsequently were used in the SEIS.

B-22

All road construction costs related to this project will be funded from the timber sale resulting from the selected alternative. We don't have any other future timber sales currently planned in this area. Justification for the investment in the current road system is to generate revenue from the proposed timber sale and allow for future transportation needs related to forest management. See Statewide Plan (Montana DNRC, 1996) for details for our management direction.

B-23 through B-25

We apologize for your difficulty understanding the old growth analyses as presented. It is a complex issue with a great many pieces. However, we disagree that it is arbitrary in any way, or that any preconceptions, biases, or desired outcomes drove the process. We believe it is an ecologically-based system that provides a reasonably accurate single number upon which to base our commitments. Please refer to responses D-8 and D-9 for more information.

B-25

guidelines are the best that are currently available for defining old growth habitat in the Swan Valley area. The DNRC did not define why these Forest Service criteria were unacceptable as standards for old growth. Since the Forest Service guidelines are based on considerable sampling of old growth habitats throughout the Northern Rockies, they would appear to be a far superior set of guidelines to use that those being employed by the DNRC. As previously noted, the DNRC age criteria for old growth appear "flexible" as well as too young. And the levels of defective trees, downed logs and snags are never quantified, as well, instead being defined in very subjective terms as none, a few, some, and many. The public has no way of actually determining what these categories include.

Their lack of definition of a minimum number of large old trees for old growth is also recognized by the DNRC as a problem for management of old growth habitat. Page 89 of the EIS addresses management of the Pileated Woodpecker, a species they note as "keystone" for old growth. To manage for this species, the DNRC in fact identified old growth stands which had minimum numbers of large old trees; this included a minimum of 11 trees over 17 inches dbh per acre, and a minimum of 11 trees over 21 inches dbh per acre. Apparently these criteria, which are relatively similar to those defined by the Forest Service for the old growth types that occur in the Swan Valley (Green et al. 1992), can be identified from the current timber data base.

Finally, the DNRC methodology for identifying old growth do not require that old growth stands actually replicate historical conditions in regard to stand density. As noted by Adams in her November 20, 1998 letter to the South Lost ID Team, a stand with only 4 large trees per acre, and a stand with very few total trees (4,000 board feet/acre) can be identified as old growth. As noted in the old growth guidelines developed by the Forest Service (Green et al. 1992), old growth stands would have to resemble typical undisturbed conditions, or have a stand density typical of old, unlogged forests of that cover type. Thus true old growth conditions will not actually be required in DNRC old growth habitat. Although stand density was not used as a criteria for old growth, this quality can apparently be determined by the timber stand data base. For example, lynx denning habitat was identified as only the most dense old growth with heavy downed logs (EIS 135).

B-26

4) By including young forests as old growth, the DNRC failed to accurately disclose or map the acreage of old growth that would remain following harvest for old growth wildlife.

By including non-old growth habitat in the tally of old growth following harvest, the loss of old growth habitat appears less than will actually occur. This is displayed, for example, in Table 3-25 on page 90 of the EIS. With the inclusion of 4,638 acres of non-old growth habitat, the SRSF is shown to contain 46% old growth, when in fact the old growth level is 33.6%. For the project area, the inclusion of non-old growth habitat results in a 55% level of old growth, when it is actually only 39%.

B-26

Effects of the proposed alternatives on old growth acreages were specifically addressed on pp. 100 and 101 in the Supplemental EIS (SEIS) (see Table 4-1). Further, a thorough analysis of project-related effects on important old growth attributes is included (SEIS, pp.103-111). Forests younger than 150 years were not included in any of these analyses or estimates. It is assumed that the acreages of old growth that would remain following treatments proposed under the various alternatives would be available for use by old growth associated species. Changes in old growth amounts that maintain various composition and structure attributes important for specific sensitive wildlife species were both mapped and quantified in the Sensitive Species effects assessment (SEIS, pp.128-142).

Table 3-25 and 4-24 (SEIS, p. 90 and p. 139 respectively) were intended to present estimates of potentially suitable habitat and expected changes in habitat for pileated woodpeckers only (ie., a fine filter assessment for pileated woodpeckers). As pileated woodpeckers use both mature and old growth forest for meeting their life requisites, it was deemed appropriate to also consider younger-aged mature forest in this analysis (SEIS p. 89). Tables 3-25 and 4-24 were never intended for use to describe changes in amounts of old growth forest specifically. Existing amounts of old growth and expected changes in these amounts due to proposed management activities are addressed in Table 4-1 (SEIS, p.101).

The analyses presented for these two species were intended to address and reflect expected changes to habitats important to them specifically, and thus, provide accurate effects assessments based on what we presently know about their ecology. Dense forests from 100-149 years of age are frequently used by these species as well as old growth forest. We believe the analysis and maps as presented accurately reflect potential habitat for these species and changes that would occur to important habitats for each of the proposed action alternatives.

B-26

For habitat impacts on the Pileated Woodpecker, Table 4-24 includes non-old growth habitat in the analysis. While total habitat differences between current and planned conditions appear relatively similar (2,299 versus 1,806 acres), these differences are actually much more significant. True old growth habitat will suffer far greater reductions than non-old growth habitat (441 versus 52 acres). Thus inclusion of non-old growth habitat in effect makes the total habitat loss that will occur appear to be less.

When the available old growth habitat is mapped for the Pileated Woodpecker and Boreal Owls, (Figures 3-14 and 3-24) the continuity of old growth habitat appears much greater than actual conditions because non-old growth habitat has been included. By including non-old growth habitat in the maps of old growth habitat for wildlife by alternatives, the DNRC was able to represent a less-fragmented old growth landscape than what will actually occur for the alternatives.

B-27

5) The best old growth patches, which are large in size and contain large numbers of big old trees and unique species, will not be saved in the current old growth management strategy.

As was noted in Adam's letter of November 20, 1998 to the South Lost ID Team, the DNRC's failure to clearly identify the best remaining old growth will result in the loss of this very old growth for wildlife. Poor quality old growth is being used to satisfy wildlife needs, while the best old growth is being used to provide timber volume. The harvest strategies for the South Lost Creek project area clearly show this. There is no pattern to harvest of old growth, except that it includes areas adjacent to those previously logged. The best old growth was likely already logged, and what remains as some of the best is left-over from previous units (adjacent). Although the EIS claims that the harvest of forests adjacent to existing cuts is being done to "reduce fragmentation," this is most likely being done because this is still where the biggest trees remain, including cedar. By the time this second harvest of old growth is completed, there will be very few large patches of high quality old growth left to provide for wildlife, especially in large patches. The current management strategy for old growth appears to have little to do with providing wildlife habitat.

B-28

6) The management direction for old growth as it will affect viability of associated wildlife species is never defined, even though some type of old growth management program is being implemented.

The EIS refers to biodiversity guidelines as the standards for managing old growth-associated wildlife, but these guidelines are never provided in the EIS. It is not clear, as well, when these guidelines were ever provided for public review.

Although biodiversity guidelines are cited in the EIS, and inferred to as direction for management of sensitive old growth species, the status of these guidelines is questionable. Guidelines will be a major determinant of how sensitive old growth species are managed. If such guidelines are indeed being used for management of old growth habitat in the South Fork of Lost Creek

B-27

The old growth effects assessment contained in the Supplemental EIS (pp. 100-111) illustrates that the proposed action alternatives vary in their effect on large tree retention and patch size. The current level of old growth stands with large tree amounts in the "lots" category is 30%. None of the proposed alternatives would reduce the post-harvest representation of large trees in old growth stands currently in the "lots" category below 24% (SEIS, Table 4-10 p. 106). While it is true that average patch size within old growth stands would decrease under all of the action alternatives, changes would generally be minor (SEIS, p.102). Greatest mean reduction would occur under Alternative B (ie., mean patch size reduction of 55 acres from the existing condition). Thus considering large trees and patch size, substantial amounts of the "best" old growth under this definition would be retained. Further, the old growth assessment in the Supplemental EIS considers and evaluates effects to other important attributes such as stand structure, vigor, snag abundance, coarse woody debris abundance and gross standing timber volume per acre.

The term "best" is subjective and not clearly defined, such that what is quality habitat for one suite of species is not necessarily usable by another. Thus, DNRC considers groupings and ranges of attributes to be important considerations for old growth management. Following treatment under any of the proposed action alternatives, un-entered old growth stands would remain well-represented elevationally within the project area, and old growth stands supporting a range of volumes would also remain (SEIS, Figures 4-8, 4-9, p. 110). Stands supporting the highest volume were not targeted for timber harvest specifically for this project, however, volume is a necessary consideration for meeting DNRC's mandated timber management objectives. Based on our current understanding of the principles of conservation biology, DNRC maintains that harvest strategies that expand the size of existing harvest units and openings in the South Fork Lost Creek project area are preferable to creating relatively small openings within large patches of dense, mature and old growth forest. DNRC recognizes that old growth provides unique ecological functions and habitats, however, our strategy is not aimed at specifically providing habitat for an individual species or distinctive species guild. Rather our strategy involves retention of important processes and habitat elements in a manner that is consistent with generation of short and long-term school trust revenue.

B-28 project area, this is a MEPA decision that is being implemented without public review.

B-29 7) Although a certain level of historical old growth is a management objective, this level is never clearly identified, or its cumulative impacts identified for the South Fork of Lost Creek project area.

Implementation of the SFLMP for old growth species is apparently occurring for the South Fork of Lost Creek timber sale. However, the long term cumulative impacts of this management program are never disclosed. It seems that less than 20% old growth habitat will be provided over time, or only about half of one identified "historical level" of 29%. Since Alternative D is the implementation level of this direction, this would appear to be the appropriate place to evaluate cumulative effects to assess feasibility. Otherwise, the SFLMP objectives are nothing more than potential management options which have questionable validity. It remains unclear how viable habitat for associated old growth species can remain in suitable patch sizes and connected with a drastic reduction of existing old growth. As is noted in the EIS, existing old growth is already much more fragmented than historically. Nor are there any large patches of old growth over 14,000 acres that once occurred in the South Lost project area.

B-30 8) Due to the conflicting nature of the information provided in the EIS and objectives for old growth as defined in the SFLMP, some type of field validation is necessary. If this plan will not maintain viable populations of associated species, this needs to be identified at the early stage of implementation, not when almost all the old growth is gone.

B-31 9) Although the DNRC purports to be identifying old growth habitat so that wildlife species can be managed, management of old growth is no different than in the past: the best old growth is being cut to produce volume, and the fragmented left-overs are supposed to sustain wildlife. The old growth strategy as is currently being implemented will not sustain viable populations of associated species.

The DNRC went to great lengths to complete an old growth analysis, as is noted on 40-67 of the EIS. The results of this complex, confusing analysis, however, were not used to design a conservation strategy for old growth-associated wildlife. There is no information ever provided to demonstrate why particular stands of old growth were selected for harvest, and why other stands were selected for wildlife. As such, the public has no idea as to what the actual old growth management strategy is for wildlife. Although the inference is made (see for example the EIS at S-1) that if a "semblance" of historic conditions are maintained or restored, species which evolved under these conditions will be maintained as well, no data is ever cited as to what wildlife will be maintained under what conditions. There is no obvious management strategy for old growth wildlife in the South Fork of Lost Creek project area, and these species are clearly threatened by cumulative impacts of past and planned timber harvest.

B-28

DNRC currently uses both a coarse and a fine filter approach for analysis and management (SFLMP, ROD-12, 1996). While important considerations in the context of habitat quality and abundance are made, species viability specifically is not addressed. Under MEPA, and the ESA, DNRC is under no legal obligation to address population viability. We believe the effects analysis is appropriate, and that the proposed mitigations are adequate to minimize negative impacts to locally occurring sensitive, threatened and endangered species.

DNRC's Biodiversity Implementation Guidance was developed for field personnel. It is provided to assist Specialists, Area Land Offices and Unit staff in interpreting and implementing the Resources Management Standards (RMS) that were identified in the SFLMP. This guidance provides consistent direction for determining minimum old growth proportions and amounts, attributes for retention, and replacement old growth amounts etc. Management considerations for specific old growth associated and/or sensitive wildlife species are not included in this document.

You made the assertion that, "If such guidelines are indeed being used for management of old growth habitat in the South Fork of Lost Creek project area, this is a MEPA decision that is being implemented without public review." DNRC does not view the Biodiversity Guidance, nor any of its other State Forest Land Management Plan (SFLMP) Implementation Guidance, as MEPA decisions. The guidance was developed for DNRC field personnel and is provided to assist the Land Office and Unit staff in interpreting and implementing the Resource Management Standards (RMS) identified in the SFLMP. The field is not bound by the guidance, but may use alternate methods to meet the RMS, as long as those methods are documented. Ultimately, the field personnel are required to meet the standards in the SFLMP, which was a MEPA decision.

Additionally, the ARM 36.2.524(5)(a), do not require an EA or EIS for "actions that qualify for a categorical exclusion as defined by rule or justified by a programmatic review." In the SFLMP Record of Decision (ROD), item D lists categorical exclusions that do not require MEPA review. "Plans and Policies" are listed as categorical exclusions, thus exempt from MEPA review.

Finally, on page ROD-10, in the SFLMP ROD, it states, "The Forest Management Bureau Chief could change management direction without changing the Plan if the proposed change did not violate the fundamental intent as reflected in the Plan and the EIS. For example, as our resource specialists became aware of new information through their ongoing review of scientific literature, we might modify our biodiversity strategy without amending the plan as long as the changes remained

consistent with our original intent."

All three of these illustrations emphasize the point that DNRC does not believe that the SFLMP Implementation Guidance needs to be subject to a public review process.

B-29

The minimum number of acres in the Swan River State Forest to be maintained as old growth by cover type is presented on p. 66 of the Supplemental EIS (Table 3-21). The analysis pertaining to forest vegetation was examined at six scales: the stand, the project area, the SRSF, the Climatic Section, western Montana and the Columbia River Basin. The two scales considered most appropriate for the majority of the analysis were the SRSF and the defined project area. Past and proposed activities are discussed thoroughly throughout pp. 39-67 and 99-112 of the SEIS. Thus, this is a complete cumulative effects analysis as well, encompassing all known previous activities on the forest. Other ongoing DNRC projects are described on pp. 9 and 10 of the SEIS. Only the Middle Soup project would contribute to discernable cumulative effects on old growth amounts (SEIS, p. 101). The 1996 Yew Bark Harvest removed 170,000 lbs, the 1997 Salvage I harvested 125 MBF, and Salvage II project harvested 65 MBF of trees, bark, and blowdow. The Section 20 Salvage project (winter 1998) when complete will remove approximately 200MBF of trees, bark, and blowdown. These salvage harvests did not measurably reduced old growth amounts or attributes at the Project Area or SRSF scales.

Reductions in old growth would vary in amount by alternative as suggested on pp. 100-101 of the SEIS. Of the 2,347 acres of existing old growth in the project area, from 237 to 481 acres (10-20% respectively) would be entered and attributes altered (as described on pp. 102-112). Of these entered old growth acres, 4 to 200 would be intensively harvested and would not continue to meet DNRC's generic definition of old growth (found on p. 40, SEIS). While residual patch arrangement varies by alternative, all proposed alternatives would retain reasonable levels of north to south, and east to west linkage post-treatment. Thus, effective patch sizes of mature and old growth forest cover would remain relatively large.

B-30

Without more specific information, it is difficult to address the "conflicting nature of the information provided in the SEIS and objectives for old growth as defined in the SFLMP." Furthermore, it is unclear as to what might be gained by suggested "field validation" and what type is being recommended. Under the SFLMP, DNRC attempts to manage for biologically diverse forests (SFLMP, ROD-1, 1996). Under the coarse and fine filter approaches to management, DNRC is attempting to provide important habitat elements (where appropriate) for species endemic to Montana. This is done in the context of favoring appropriate mixes of stand structures and compositions on state lands while considering important ecological characteristics. We believe that this approach, when applied correctly, will contribute to the maintenance of viable wildlife populations. Both old growth associated species and non-associated species are considered under this approach.

B-31

The old growth effects assessment contained in the Supplemental EIS (pp. 100-111) illustrates that the proposed action alternatives vary in their effect on large tree retention and patch size. The current level of old growth stands with large tree amounts in the "lots" category is 30%. None of the proposed alternatives would reduce the post-harvest representation of large trees in old growth stands currently in the "lots" category below 24% (SEIS, Table 4-10 p. 106). While it is true that average patch size within old growth stands would decrease under all of the action alternatives, changes would generally be minor (SEIS, p.102), especially when considered in the context of natural disturbance events characteristic of the area. Greatest mean reduction would occur under Alternative B (ie., mean patch size reduction of 55 acres from the existing condition). Thus considering large trees and patch size, substantial amounts of the "best" old growth under this definition would be retained.

Following treatment under any of the proposed action alternatives, un-entered old growth stands would remain well-represented elevationally within the project area, and old growth stands supporting a range of volumes would also remain (SEIS, Figures 4-8, 4-9, p. 110). Stands supporting the highest volume were not targeted for timber harvest specifically for this project, however, volume is a necessary consideration for meeting DNRC's mandated timber management objectives. Based on our current understanding of the principles of conservation biology, DNRC maintains that harvest strategies that expand the size of existing harvest units and openings in the South Fork Lost Creek project area are preferable to creating relatively small openings within large patches of dense, mature and old growth forest. DNRC recognizes that old growth provides unique ecological functions and habitats, however, our strategy is not aimed at specifically providing habitat for an individual species or distinctive species guild. Rather our strategy involves retention of important processes and habitat elements in a manner that is consistent with generation of short and long-term school trust revenue. We believe the effects of this proposal are described accurately and adequately in the SEIS.

B-32

10) The following are examples of a lack of any management strategies for old growth-associated species in the project area.

a) Pileated Woodpecker

The EIS (page 89) identified the Pileated Woodpecker as a "keystone species" for old growth. Since this species is not restricted to a particular elevation, and requires the most high quality old growth (large trees), we agree this is a good keystone species. Management of viable populations of Pileated Woodpeckers would preserve many other species, since the former requires large blocks of old growth (2700 acres) (Bull and Holthausen 1995). These same large blocks of old growth habitat would meet the needs of old growth songbirds (Hutto 1995, 1996), as well as provide nesting and foraging habitat for Boreal Owls (Suring et al. 1992) and Black-backed Woodpeckers (Goggans et al. 1988). Fragmentation levels could be further reduced and block size further increased in these Pileated Woodpecker management areas by providing for replacement old growth habitat within the same contiguous landscape.

Yet there are no conservation strategies defined for the Pileated Woodpecker in the South Lost Creek project area. Quality old growth habitat will be both logged and fragmented. Quality old growth habitat, or that which contains large old trees, totals 1,634 acres (Table 3-25, EIS 90). This is 39% of the project area. Under Alternative D, 441 acres of this habitat will be logged, reducing quality old growth for this species to 29% or 1,193 acres after logging. Of the two larger blocks of suitable old growth habitat that currently exist for this species, one block will be logged. No analysis is provided to show how this level of old growth will maintain viability of the Pileated Woodpecker.

Management of a given level of old growth habitat, regardless of patch size and distribution, cannot maintain viable populations of native species. This is particularly true when planned levels of old growth (29% in the South Fork of Lost Creek project area) are far below historical conditions (74%) and much more fragmented. In fact, the actual old growth level could be reduced to only 14.5% and meet DNRC objectives (half of historical levels). This would provide only 603 acres of old growth, potentially scattered across 4,161 acres. The current direction being taken by the DNRC will not ensure viability of this species. The most current conservation strategy developed by Forest Service research biologists calls for blocks of 2,700 acres of older forest habitat to maintain three closely-associated breeding pairs of Pileated Woodpeckers (Bull and Holthausen 1995).

B-33

b) Boreal Owl

The project area contains only 491 acres of high quality Boreal Owl habitat (EIS at 82, Table 3-24). This represents only 12% of the project area. Habitat is even more limiting in the SRSF at 8%. The EIS does not define why this habitat will be reduced even further with logging. The 491 acres of quality habitat will be reduced by 125 acres, to 366 acres. This will be 8.8% of the project area, and 7% of the SRSF. The EIS never defines why this low level of Boreal Owl habitat is acceptable. Page 129 of the EIS states that "Old growth

B-32

We believe that we have described potential effects of this proposal on pileated woodpeckers accurately and adequately in the SEIS. Potential adverse effects on feeding and nesting habitat were acknowledged and disclosed (SEIS, pp. 139-140). DNRC manages to generally support populations of sensitive species, such as the pileated woodpecker on state land. However, we also recognize that because of our limited ownership, these efforts are supportive of, albeit subsidiary to, the principal role played by Federal agencies with larger land holdings (RMS-3, SFLMP ROD-31, 1996). While feeding and nesting habitat would likely be reduced to varying degrees under this proposal, more than 1,000 acres of the best available habitat would remain within the project area following implementation of any of the action alternatives (SEIS, Table 4-24, p.139). This habitat would remain in relatively large, interconnected patches lying in close proximity (<1/2 mi.) to other suitable habitat. Additional amounts (several thousand acres) of habitat potentially suitable for feeding and nesting would remain outside of the project area as well on adjacent state lands to the southwest, and Forest Service lands and the Bob Marshall Wilderness Area to the east (SEIS, pp. 140-142). Detectable declines in nesting pairs of pileated woodpeckers at the scale of the SRSF would not be expected to result from activities associated with this project.

B-33

We believe that we have described potential effects of this proposal on boreal owls accurately and adequately in the SEIS. Potential adverse effects on feeding and nesting habitat were acknowledged and disclosed (SEIS, pp. 128-131). DNRC manages to generally support populations of sensitive species, such as boreal owls on state land. However, we also recognize that because of our limited ownership, these efforts are supportive of, albeit subsidiary to, the principal role played by Federal agencies with larger land holdings (RMS-3, SFLMP ROD-31, 1996). In the MEPA process it is the role of the decision maker to define what is "acceptable," thus, discussion of this was not included as a part of the effects assessment.

Using Losensky's (1997) values for expected historic old growth amounts, it is estimated that 13,738 acres (6,869 x 2) of old growth occurred on the SRSF under average historic conditions. Of this 13,738 acres, it was estimated that 572 acres (286 x 2) were old growth subalpine fir. Presently, there are an estimated 1,727 acres of old growth subalpine fir (SEIS, Table 4-1, p.101). Under any action alternative >1,600 acres would be retained (ie., at levels greater than those expected to occur under average historical conditions on DNRC ownership —572 acres). Regarding the 1930's inventory, page 46 of the SEIS indicates, rather, that 74% of the stands (all cover types included) were in the Old Stand (not necessarily old

B-33 retention amounts in the cover type considered of primary importance for Boreal Owls (subalpine fir cover type) would remain at levels greater than those expected to occur under average historical conditions on DNRC ownership following treatments under all action alternatives." This conclusion is never explained, however, and conflicts with information provided elsewhere in the EIS. Page 46 of the EIS shows that subalpine fir old growth averaged 74% of the SRSF in a 1930s inventory. This is over 10 times the level that will be provided following harvest in the South Fork of Lost Creek project area.

In addition to a reduction of the best Boreal Owl habitat in the project area, the proposed action will fragment the largest remaining block of Boreal Owl habitat in the project area with the harvest of unit 6. This will in turn reduce the local concentration of old growth in this area. High densities of old growth within portions of the landscape are recommended for the Boreal Owl (Suring et al. 1993).

c) Lynx

B-34 The lack of well-defined habitat objectives for the lynx for the South Fork of Lost Creek project area are understandable given the lack of research data on management of this species. In fact, some of the direction identified in the EIS is questionable without proper monitoring; 20-30 year old sapling stands may provide foraging habitat for lynx, provided snowshoe hares are abundant. However, hare response to harvests will be strongly influenced by local conditions and type of disturbance, so one can not automatically assume that logging will create hare habitat. This will also require that logged stands are not later thinned to promote tree growth, a practice which is rarely identified on public lands managed for timber.

Although management guidelines have recommended that only small amounts of old growth are required for the lynx, this recommendation also requires further study and validation. At present, a 5% level of high quality old growth is recommended, and this is also recommended in the EIS. Page 87 of the EIS states that "efforts to manage for up to 5% of an analysis area (BMU) in denning habitat near foraging habitat are deemed desirable."

There are currently only 997 acres of lynx denning habitat in the BMU associated with the South Fork of Lost Creek project area (EIS 136). Most of this old growth occurs in the project area (906 acres). Although this denning habitat constitutes only 5% of this BMU, 97 acres will be logged under Alternative D. This will reduce the denning habitat in the BMU to only 4% (Table 4-22). Thus the one management guideline identified for the lynx which requires retention of old growth habitat will not be met with this project. The failure to meet this guideline is not identified as a management concern in the EIS (page 135), either from a project or cumulative perspective.

B-35 **11)** The status of old growth cedar, although a public issue, is never defined for Alternative D.

The EIS at 53 notes that SRSF contains 874 acres of cedar. This is only 2% of the SRSF. The South Lost Creek project area, in turn, contains about

growth) category. For subalpine fir, 47% of all age classes of subalpine fir stands sampled were old stands. Thus, only 2,156 acres of subalpine fir in the 1930's inventory were considered old growth (ie., <6% of all forested acres).

Boreal owls are nomadic and not highly sensitive to the influences of forest fragmentation. Further, while it is true that average patch size within old growth stands would decrease under all of the action alternatives, changes would generally be minor (SEIS, p.102). Greatest mean reduction would occur under Alternative B (ie., mean patch size reduction of 55 acres from the existing condition). Based on our current understanding of the principles of conservation biology, DNRC maintains that harvest strategies that expand the size of existing harvest units and openings in the South Fork Lost Creek project area are preferable to creating relatively small openings within large patches of dense, mature and old growth forest.

B-34

We believe that we have described potential effects of this proposal on lynx accurately and adequately in the SEIS. Potential adverse effects on feeding, denning and travel habitat were acknowledged and disclosed (SEIS, pp. 135-138). It is true that snowshoe hare response can vary with available habitat conditions, however, it is quite unlikely that dense, young conifer stands (known to be preferred habitat for snowshoe hares) will develop without some form of stand-replacement disturbance. Any pre-commercial thinning in young, regeneration stands would be done in compliance with DNRC's Sensitive Species Guidance for Lynx.

Under this proposal 4 action alternatives were considered for selection. Three of the four met the 5% denning habitat retention criteria for the corresponding BMU. Alternative D did not, and denning habitat would be reduced from 5 to 4% within the BMU post-harvest (SEIS, p.136). As mentioned, additional study and validation are required for further determining the importance and effectiveness of current denning habitat recommendations. Although denning habitat would be reduced below recommended guidance under Alternative D, the expected effect would be minimal as the denning habitat being harvested in is concentrated in an area with relatively low access to suitable feeding habitat. Thus, it is unlikely that the currently available feeding habitat in the South Fork Lost Creek drainage would support high numbers of denning lynx. Improved distribution of denning habitat within this particular BMU would be desirable, but this is not achievable through activities associated with this project.

B-35 half of this cedar, or 462 acres. It appears that this cedar occurs in a relatively large block on the south side of South Lost Creek. It also appears that about 4.2 MMBF of the gross harvest volume will be cedar. This indicates that a large acreage of cedar will be included within the total 514 acres to be cut. It is clear that the unique value of old growth cedar is not being preserved in this project area or the SRSF.

Preservation of large blocks of unfragmented old growth is never addressed, although this is the greatest habitat need for associated species; this indicates that viability of old growth-associated wildlife was never a serious management consideration in the project planning for this timber sale.

Although fragmentation is addressed in the EIS (see for example page 55, 66), and it is noted that past logging has resulted in a more fragmented area than occurred historically, there apparently are no management recommendations or guidelines to maintain not just old growth, but functional old growth in regard to patch size. As noted by Harris (1984), the value of old growth habitat to wildlife will be greatly influenced by the patch size. The importance of patch size and concentration of habitat for wildlife has been clearly expressed in existing management guidelines for wildlife, including for the Boreal Owl (Suring et al 1993), Pileated Woodpecker (Bull and Holthausen 1995) and songbirds (Hutto 1995, Hutto 1996, Robins 1979).

The patch sizes that will be provided for wildlife to ensure viability are never identified in the EIS. It appears that management of blocks of suitable old growth habitat, that are connected with other forest habitat, including replacement old growth, was never considered in this project. It will take this type of management strategy to ensure viability of old growth-associated wildlife.

B-36 CUMULATIVE EFFECTS

1) There is no cumulative effects analysis of DNRC management strategies on wildlife associated with old growth habitat.

A host of cumulative effects of the current management strategy which is being implemented in the South Lost Creek project area were never evaluated in the EIS. These include the cumulative impacts of past logging on old growth habitat in the project area and SRSF, the cumulative impacts of other planned harvests, and the cumulative impacts of defect in old growth that affect total harvest acres.

There is no analysis provided in the EIS regarding how past logging and salvage/sanitation activities have affected the cumulative loss of old growth, including on an elevational distribution and lynx denning habitat, in the SRSF. If past levels were potentially up to 85% of the SRSF, and now are only about 34% (Table 3-25 of the EIS), this represents a drastic loss of old growth habitat. Also, most of the remaining lynx denning habitat (91%) is located within the South Fork of Lost Creek area of the SRSF, or clearly is not well-distributed. It appears that past logging has greatly impacted the current conditions of habitat. And habitat that is supposedly now functioning as old

B-35

Cedar-dominated mixed conifer stands were addressed in the SEIS (pp. 53, 100, 74, 117, 120). Effects to cedar under Alternative D were addressed in column 1, para. 4 on p. 100 of the SEIS. While old growth would be reduced in the mixed conifer type (of which some stands are dominated by western red cedar) from 10 to 200 acres under the various alternatives (derived from Table 4-1, p. 101 SEIS), only 3 acres of mixed conifer cedar would be converted to shade intolerant cover types under Alternative D.

Consideration for patch size, shape and fragmentation as related to old growth were addressed on pp. 55-58, 66, 74, 102-103, 120 in the SEIS. DNRC's Biodivesity Implementation Guidance is currently used to provide direction regarding important aspects of old growth management and retention. It was not deemed necessary to include this document in the SEIS. Discussions regarding patch size, forest connectivity and replacement old growth (pp. 65-66, 101) were all discussed in the SEIS.

B-36

Cumulative effects analyses were included in the SEIS under the coarse and fine filter approaches (see pp. 74, 120 and sensitive species analyses Ch.3 and 4 for the boreal owl, fisher, lynx, and pileated woodpecker). By design, MEPA is intended to address effects related to pertinent issues associated with a given project. It is not intended to be encyclopedic. We addressed what we believed to be important issues for this project, incorporating an appropriate level of detail.

Past sanitation and salvage logging in old growth forest was addressed in the SEIS on p.63, Table 3-18. Past effects of sanitation and salvage treatments were also reflected in the SLI database used for all of the vegetation analyses. Thus, existing documented attributes are presumed to be influenced to some degree by past salvage harvesting (i.e., lower snag and coarse woody debris densities etc.). While the past effects of salvage harvesting were important to consider, specifically fleshing-out such questions as... "how much lynx denning habitat was removed by past salvage harvesting?"... was not considered important for evaluating localized and cumulative effects of the proposed action alternatives.

We believe that we have described localized and cumulative effects to old growth accurately and adequately in this analysis.

B-36 growth may in fact be considerably degraded due to ongoing salvage activities, including the road corridors that have been constructed to allow vehicle access. In addition, probably the best, largest patches of lower elevation old growth have already been removed, so the old growth that remains are probably lower quality old growth even when fragmentation impacts are ignored. Since yet more old growth will be logged with the South Lost proposal, the public should have a full understanding of how these cumulative losses of old growth will affect viability of dependent species. As was noted previously in our comments, simply defining old growth habitat as a percentage of the landscape does not address connectivity, patch size, and habitat concentration. The loss of viability that has already occurred due to past logging of old growth habitat needs to be addressed as per cumulative impacts of this entire program. As one example, the historical availability of very large patches of old growth (over 14,000 acres) likely greatly enhanced viability of old growth-associated species as compared to current heavily-fragmented conditions.

B-37 2) Failure to evaluate cumulative impacts on old growth cedar hemlock forests

In a 1978 FEIS for the SRSF Management Plan, the DNRC identified a total of 6,500 acres of western red cedar/queencup beadlily habitat type for the SRSF. With a large percentage of the SRSF being in old growth condition, most of these stands likely contained climax stands of cedar. Yet the South Lost Creek EIS identified only 874 acres of cedar forests in the SRSF, 462 acres of which occur in the South Lost Creek project area. It appears that the majority of the cedar forests on the SRSF have been logged. This will create a significant impact on many forest songbirds. Hutto (1995) identified 11 songbird species in the Northern Rockies that have strong associations with undisturbed cedar-hemlock forests; these include the Brown Creeper, Chestnut-backed Chickadee, the Golden-crowned Kinglet, the Nashville Warbler, the Red Crossbill, the Swainsons Thrush, the Townsends Warbler, the Varied Thrust, the Wilsons Warbler, and the Winter Wren.

B-38 3) Cumulative impacts on landscape management of old growth

There is no information provided in the EIS about how other remaining old growth in the SRSF will be managed, such as in the Middle Soup area. Projections of old growth for the SRSF infer that no additional old growth losses will occur, when this is not correct. Besides the Middle Soup sale which is planned, ongoing salvage sales are also occurring. These sales will significantly impact old growth qualities by reductions of snags and downed logs (Bull et al. 1997, Bull et al. 1995).

B-39 4) Cumulative impacts of timber defects in old growth forests

There is no information or analysis provided in the EIS regarding the total acreage of old growth harvest that will be required to achieve targeted volumes of timber. In the South Lost Creek sale, for example, it appears that up to a 38% increase in total harvested acres will be required to achieve the volume target of 8.2 MMBF, due to expected defect in old growth timber. The

B-37

Our best current estimate of stands on the SRSF in the "mixed conifer" cover type that are dominated by western red cedar is 874 acres. Of this 874 acres, 465 are old growth. Of this 465 acres of old growth, 408 acres would remain in an unharvested condition across the SRSF post-treatment. Under the proposed action alternatives, 3 to 22 acres of old growth cedar would be converted to shade intolerant cover types (SEIS, p. 100).

B-38

Only the Middle Soup project would contribute to discernable cumulative effects on old growth amounts (SEIS, p. 101). The 1996 Yew Bark Harvest removed 170,000 lbs, the 1997 Salvage I harvested 125 MBF, and Salvage II project harvested 65 MBF of trees, bark, and blowdow. The Section 20 Salvage project (winter 1998) when complete will remove approximately 200MBF of trees, bark, and blowdown. These salvage harvests did not measurably reduced old growth amounts or attributes at the Project Area or SRSF scales. Past sanitation and salvage logging in old growth forest was addressed in the SEIS on p.63, Table 3-18. Past effects of sanitation and salvage treatments were also reflected in the SLI database used for all of the vegetation analyses. Thus, existing documented levels of attributes are presumed to be influenced to some degree by past salvage harvesting (i.e., lower snag and coarse woody debris densities etc.). Effects on snag and coarse woody debris amounts in old growth forest are described on pp.107-109 of the SEIS. Additional effects on wildlife species were included in the coarse and fine filter analyses.

B-39

8.2 million board feet is not a target volume. It is an estimate of the net board foot volume that will be harvested under alternative D. There will be no additional forested acres cut if the actual harvested volume is less than 8.2 million net board feet. Defect has already been considered and is accounted for in the 8.266 net board feet estimate generated by the timber sale cruise.

B-39 additional harvest levels required to compensate for defect should be considered as a part of the management decisions to log old growth.

B-40 5) The EISs failed to evaluate cumulative effects on bull trout and water quality.

B-41 Friends of the Wild Swan submits our commits in the spirit and intent of the Montana Environmental Policy Act. We are dismayed, however, that DNRC is already drawing up a contract selecting Alternative D and is planning to submit Alternative D to the Land Board for approval in March, before the comment period has closed and before DNRC has had the opportunity to review our comments and concerns. We are not surprised, though, that DNRC is selecting Alternative D since this alternative had already been marked on the ground since before the release of the Draft Environmental Impact Statement.

Sincerely,

Arlene Montgomery
Program Director

cc: Montana Board of Land Commissioners

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B-40

A cumulative effects analysis as completed for the South Fork of Lost Creek project. The analysis, methodology, and results are displayed on pages 94-95 and pages 145-147 of the SEIS. Additonally, cumulative effects to bull trout are more thoroughly documented in the Final SEIS errata in chapters 3 and 4. For additional information on cumulative effects to bull trout, please see the Fisheries Biological Assessment, Flathead National Forest, Region 1, in the project file.

B-41

It is common to begin field layout of timber sales before the MEPA process has been completed and an alternative has been selected. Many of the proposed harvest units on the proposed South Lost Timber Sale are common between alternatives. The layout and cruising of harvest units provides more precise volume and value projections than relying on the rough volume estimates within the stand level inventory. It also contributes to a more accurate comparison of effects between alternatives within an environmental analysis. As you are well aware, it is also common to modify marking within harvest units and/or to add or delete units after an alternative has been selected (i.e., Middle Soup Creek Timber Sale, Swan River Timber Sale). The field layout that you referred to has not compromised consideration of all alternatives or consideration of all comments received through the MEPA process.

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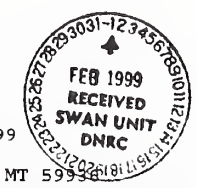

30 January 1999
Box 366
West Glacier, MT 59936

Department of Natural Resources
and Conservation
Swan River State Forest
Swan Lake, MT 59911

Re: Comments on the South Fork Lost Creek:
Supplemental Environmental Impact Statement

C-1 I am disappointed to find many ambiguities and omissions remaining in this document. The proposal remains a narrowly focused timber cutting plan, not a facet in a broad and enlightened forest management plan. No compelling biological justification for removing old-growth cedar has been made. Old-growth cedar is now an uncommon attribute of the Swan River State Forest, in fact in all of western Montana's forests. If the State has any intention of sustaining biological diversity, cutting old-growth cedar as outlined in the EIS for the South Fork of Lost Creek violates that goal. Where is the quantitative evaluation of what cedar previously has been cut, and the cumulative effects?

C-2 Where is the quantification of tree species and dbh classes by cutting unit? This information is provided to bidders. Why is it not in this document? Many terms in the document are deceptive; e.g., in Appendix C, leaving "few" snags in a cutting unit means, according to your definition, leaving **one** (and it need be only 15 inches dbh).

C-3 Is there "defective" old-growth that will be cut but that is not described in detail and not included in what is purported to be the total volume to be cut?

C-4 No thorough or biologically detailed description of the impacts of the proposed roading and cutting on mountain goats is included in the document. There is sufficient historical evidence to raise this as a major environmental concern.

C-5 In my view, as presently designed, this timber cutting plan gives inadequate recognition and accommodation to the complex of ecosystem components and processes that support diversity in the Drainage. Although somewhat modified from the initial proposal, it remains focused on short-term cutting goals rather than long-term forest management goals.

Sincerely,

Pat McClelland

Pat McClelland

Pat McClelland (1/30/99)

C-1

We recognize that some level of ambiguity is inherent in most MEPA documents focussed on forest management activities. This is due in large part, to our limited knowledge of forest ecosystems and their associated processes. The disturbance regime frequently associated with western red cedar found within the SRSF is one of stand replacement. Thus, cedar stands were extensively altered periodically at relatively long intervals. Our estimate of stands on the SRSF in the "mixed conifer" cover type that are dominated by western red cedar is 874 acres. Of this 874 acres, 465 are old growth. Of this 465 acres of old growth, a minimum of 408 acres would remain in an unharvested condition across the SRSF post-treatment. Under the proposed action alternatives, 3 to 22 acres of old growth cedar would be converted to shade intolerant cover types (SEIS, p. 100). Cedar-dominated mixed conifer stands were addressed in the SEIS (pp. 53, 100, 74, 117, 120). Effects to cedar under Alternative D were addressed in column 1, para. 4 on p. 100 of the SEIS. While old growth would be reduced in the mixed conifer type (which includes some western red cedar stands) from 10 to 200 acres under the various alternatives (derived from Table 4-1, p.101 SEIS), only 3 acres of mixed conifer cedar would be converted to shade intolerant cover types.

The best data available shows that in the 1930s the SRSF had slightly over 100 acres of cedar type. Today's inventory shows 874 acres. Thus, there has been an apparent increase of about 700 acres of cedar type. Some of the apparent increase likely reflects different inventory procedures and some of it is real. Although, cedar has been previously harvested, we have no way to reconstruct the cover type or old growth character of stands harvested. The vegetation analysis is a quantitative cumulative assessment of all harvest activities on the SRSF that shows conditions in the 1930s, pre-harvest and post-harvest, as well as the desired future condition or appropriate condition that best meets SFLMP goals.

C-2

The quantification of tree species and DBH classes by cutting unit is located in the project file in the cruise information. All documentation in the project file is available to anyone that requests it. A list of volumes and average DBH by tree species is provided to prospective bidders to aid them in the bidding process. We do not provide bidders with a breakdown of volume for each tree species by DBH class in

each cutting unit, unless they specifically request such information. Bidders are provided with information that is pertinent for them to submit their bid. If the bidders need more information, they can request it and it will be provided. The same is true for environmental documents. If a member of the public makes a request for more information it will be provided.

Cut volumes estimates are developed through the timber sale process. Normally, we do not have this information until after the EIS has been produced and an alternative has been chosen. The timber sale cruising process needs very specific information about what is to be cut to be accurate. This type of information is only available after an alternative has been chosen, cutting unit(s) boundaries have been delineated on the ground and in some cases leave trees have been painted.

Timber sale cruise data is not used in the cumulative effects analysis because we only have this detailed information for the specific areas to be harvested. Since we do not have the same level of information through out the project area much less the entire Swan River State Forest it is not useful for comparisons needed for cumulative effects analysis. In addition the cruise data focuses on cut trees (occasionally it contains data about leave or residual trees), so the information says nothing about snags or coarse woody debris.

While some of the terms in the SEIS are confusing, they are not designed to be deceptive. What is clear to the writer is not always clear to the reader and we apologize for any confusion. The definitions used to describe the amount of snags per acre, course woody debris and large live trees in Appendix C do need further explanations. The codes enclosed in parentheses (0,1) have the following definitions:

code 0 = less than one snag per acre
code 1 = 1 to 5 snags per acre
code 6 = 6 to 10 snags per acre
code 11 = 11 or more snags per acre

The category "FEW" contains forested stands that have less than one snag per acre of 21 inches dbh or larger and 1 to 5 snags per acre of 15 to 20 inches dbh. This situation is represented by the combination of codes 0 and 1 or (0,1). The large live tree codes have the same numerical range for each code.

More explicit Appendix C definitions are located in the errata section of the final SEIS.

C-3

I believe your question about "defective old growth" arises from the difference between the gross volume and the net volume. Most, if not all, old growth has a certain amount of defect associated with it. Defect is the timber cruise's estimate of the how much of the gross volume cannot be sawed into lumber. It is usually estimated as a percentage of the gross volume by species. The gross volume of timber proposed for harvest under the preferred alternative is approximately 11 MMBF. The 11 MMBF has an estimated defect of approximately 25 percent, which results in a net volume of about 8.3 MMBF. Both volume estimates represent the same trees.

The analysis of effects is based on acres treated, treatment method, and approximate volume estimates derived from DNRC's Stand Level Inventory. The actual estimate of the timber sale's volume is usually not known until after the harvest units are located on the ground and have been cruised.

C-4

Mountain goats were raised as a topic for discussion by a concerned citizen that attended a project area field tour on June 16, 1998. There is evidence to suggest that mountain goats used the northeast portion of the project area (primarily sections 1 and 2), prior to the establishment of Road #680 that runs along South Fork Lost Creek. Further consideration for mountain goats was given by the DNRC, FMB wildlife biologist during a September 1998 site review. Activities associated with the South Lost Project were expected to have little additional likelihood of adverse effects to mountain goats. Thus, they were not analyzed specifically in the SEIS. Concern for this species was not raised by DFWP for this proposal.

C-5

I hope the above responses more clearly explain the complexity of the analyses completed on ecosystem components and processes. Although we will never have a complete knowledge of all ecosystem components, processes and interactions, we believe our biological diversity guidelines and strategies incorporate the most up to date scientific understanding of ecosystem management. We also believe the old-growth network contributes to maintaining important ecosystem components in appropriate amounts and distributions.

We agree the focus of this proposal remains on providing monetary return to the school trust in the short term. We also believe the proposed actions will contribute moving the ecosystem towards long-term management goals.

Jane Adams
229 Edgewood Drive
Kalispell, MT 59901

Glen Gray
Swan River State Forest
Swan Lake, MT 59911

Dear Glen, January 29, 1999

Please accept the following comments on the South Lost Supplemental EIS.

D-1 Proposed harvest and compliance with biodiversity guidelines and SFLMP
Regarding the past salvage harvesting, all the relevant information has not been included to fully describe impacts. Only 23.7% of the historic amount of old growth on the SRSF would be in the condition that species evolved with after this sale. You are already far below the commitment made in the SFLMP for old growth and this needs to be displayed.

D-2 At the heart of the SFLMP Omega philosophy, is the coarse filter approach to landscape management. This is described in the SFLMP under both the description of the Omega philosophy (ROD-2) and the fundamental approach to the Biodiveristy Resource Management Standards (ROD-12) as follows: "A coarse filter approach "assumes that if landscape patterns and processes *(similar to those species evolved with)* are maintained, then the full complement of species will persist and biodiversity will be maintained" (italics added). DNRC is not attempting to maintain the conditions that species evolved with in either the current biodiversity guidelines, or with the proposed South Lost proposed timber sale old growth.

The biodiversity guidelines use *current* conditions as the basis for ~~existing~~ appropriate conditons, rather than historic (pre-timber harvest) conditions. The biodiversity guidelines, p 11, state:

> "The existing distribution of stands along the continuum of those (old growth) characteristics should be maintained. For example, if a pre-harvest assessment indicates that 30% of our old western larch\Douglas-fir stands are snaggy, with moderate amounts of down woody debris and many large trees then roughly that same proportion should exist post-harvest.....The intent should be to maintain the existing proportional representation of the characteristics mentioned and quantified".
>
> "(On the SRSF) we assume that the existing distribution of old growthedness in old stands is roughly equivalent to that which existed historically. So, within a project area or within stands proposed for harvest we quantify or assess qualitatively the characteristics of importance and retain post harvest distribuions equivalent to those that existed post-harvest".
>
> As for stands that have received past salvage harvest, the guidelines merely state:
> "...some degree of judgement should enter into the decision of how much old growthedness to maintain. The suggestion at present is to lean toward retention of a higher

Jane Adams (1/29/99)

D-1

We disagree with the commenter's suggestion that we are at 23.7% of historic old growth and believe our analyses as presented represents the use of the best available science.

D-2

We disagree with the commenter's use of the 1930s inventory. We disagree with your statement that the biodiversity guidelines violate the SFLMP, and that this sale violates the biodiversity guidelines.

D-2

proportion of stands with those characteristics than a simple existing proportion would indicate".

Current condititions do **not** represent conditions that species have evolved with, if the stands in question are old growth that has been entered previously, and the species in question are old growth associated species. As you know, the components that make old growth valuable to old growth associated species are the very components that salvage and select logging removes: the large live trees, and dead and dying mature trees that will soon become snags and downed wood. Species did not evolve with forests in which these elements had been removed. Those structural elements are crucial for natural patterns and processes to occur.

According to the South Lost SEIS:
- 74% (28,614 acres) of old growth existed historically on the SRSF (the actual 1930's inventory classifies about 85% of the SRSF as old growth, but for now I'll use the DNRC's estimate).
- 45% (17,333 acres) of old growth exists now on the SRSF.
- Of the existing old growth, 58% (10,053 acres) has been entered with salvage and other harvests, and that levels of snags, downed wood, and large trees are less abundant on these acres than existed historically. That means that of the existing old growth, only 42% or 11,281 acres have not been entered.
- The preferred alternative in the South Lost timber sale proposes to enter 481 acres of previously un-entered old growth. Of this, 200 acres would no longer be old growth, and 281 acres would be altered. This sale is *targeting* previously un-entered old growth stands with high numbers of large trees, snags and downed wood.
- Post-harvest, there will be a total of 6,798 acres of old growth that has not been previously entered, and 10,334 acres of "old growth" that has been entered with some kind of timber harvest on the SRSF. So of the original 28,614 acres of old growth on the SRSF, only 23.7% of it will remain in the state that species evolved with. And that's just after the South Lost timber sale! This doesn't even consider the horribly fragmented, picked over state the remnants of old growth will be in once you've reached your "desired future conditions"!

The SFLMP says you'd maintain the patterns and processes that existed historically and the conditions that species evolved with, which the biodiversity guidelines violate by directing you to manage for current rather than historic conditions. Then in this SEIS you acknowledge that snags, large trees and downed wood are less abundant than historically, and yet your preferred alternative plans on reducing them further and not even maintaining the current depauperate conditions! So your biodiversity guidelines violate the SFLMP, and this sale violates the biodiversity guidelines. What is next?

D-3

<u>Old growth retention network</u>
There are many references made throughout the document of the old growth network. For example Page S-14 states "Each of the timber harvest alternatives were also developed around a SRSF old-growth network. The network contributes towards maintaining a distribution of large patches of old growth and connectivity between patches of old growth to provide a functional old-growth network for wildlife (refer to the project file)." Why was a map of this not included in the SEIS? A map of this old-growth network, as well as a map of the existing old growth, and

D-3

A map of the draft proposed old growth network was consciously not included in the SEIS for three reasons: 1) the network is in draft stage and it was deemed important to make further refinements and have additional internal review before it was officially presented to a broad audience; 2) additional outside peer review is needed on the draft network; and 3) DNRC managers were concerned that inclusion of the map in the SEIS could falsely lead readers to believe that a MEPA decision was also being contemplated for the network, when in fact the old-growth network is solely a planning tool. A copy available for review is in the project file.

Including a map of the old growth network, existing old growth, and a historic map of old growth in the 1930s to examine cumulative effects of past and future actions is an interesting suggestion. However, as mentioned above, a decision was made to not include the network in any MEPA documents at this time. Further, while the 1930's map might provide a general notion of historic old growth amounts and distribution, there is sufficient evidence to believe that errors exist in the map which could also mislead readers. A map of the existing old growth on the SRSF is included on p.54 of the SEIS. We believe that the SEIS contains sufficient information to facilitate informed decision making.

D-4

We agree that consideration and priority should be given to previously un-entered stands, and will consider this point in future refinements of the old growth network. While we understand that inclusion of un-entered stands is important, we also recognize that other previously-entered stands exist that likely have high ecological value as well. Future refinements will incorporate stand information regarding harvest history as well as patch size, juxtaposition on the landscape, and contribution to connectivity and linkage.

The working draft of the old growth network is an attempt to develop the best, reasonable arrangement and selection of old growth stands for meeting old growth commitments made under the SFLMP. The present network represents 63% of the old growth expected to exist on the SRSF under average historic conditions. This exceeds DNRC's minimum 50%commitment by 13%.

D-5

Presently, the old growth network identifies existing old growth patches that have high value for various reasons, and collectively represent one preferred approach intended to promote ecological function. With the exception of several stands that

D-3 a map of historic old growth as it was mapped in the 1930's should be included to really illustrate cumulative impacts of past and probable future timber harvests.

D-4 In relation to the first point about previous harvest entries and maintaining natural processes and conditions that species have evolved with, the stands in your old growth retention network should be previously un-entered stands. This information is not displayed. How many of the stands that are in your old-growth network have been entered previously with salvage and other harvests? From the field recon I did of the network while it was in its draft stage, most of the stands I visited had been entered. If such stands are all you have to work with, let me suggest that you increase the acreage in your old growth network to partially compensate. Many examples are found in the wildlife literature demonstrating that lower quality habitats support fewer individuals, and by logging in old growth you have seriously reduced the quality. To meet the intent of the SFLMP, you should compensate for decreased quality with increased quantity.

D-5 Finally, on page 65 in your discussion of the old growth network, it is pretty clear that you are not committed to this old-growth network. If there is no commitment to maintain these stands as old growth, then why even have this network?

D-6 The depiction of the disagreements amongst ID team members is distorted and incomplete. Page 1-5. I find it appalling that you could present our disagreements in this way. First, you say "During the months of July and August 1998, the ID team met several times to discuss concerns and work through disagreements relating to the vegetation analysis". You didn't bother to mention that the meetings were all held while I was away on my honeymoon, and I was the one person who had expressed serious concerns about the vegetation analysis! The one meeting at which I was present was after the old growth procedures had been discussed at length and the methods had been revised. At the meeting I attended, the entire morning was spent "discussing" Glens "agreement". Jon Dahlberg and Glen Grey spent hours trying to get me to sign this "agreement" in which I would agree to "Accept and support decisions of the group reached through concensus even though we may not fully agree. (Concensus will be reached when there is 80 percent agreement)". Obviously, since I made up less than 20% of the group, and the rest of the group had already agreed on methods, I would have no voice in signing this agreement. This clearly violates the MEPA process and was not what the land board had in mind when they said they wanted DNRC to come up with a project that the wildlife biologist would support.

D-7 For the record, I feel that you have not objectively and fairly responded to my concerns. You have responded only to my one introductory sentence, and all but ignored the other seven pages of text. I do not want to have to repeat all those concerns here (you didn't listen the first time, to try again would be a waste of my time), but will simply say that my original, full concerns stand. Some of the most blatant examples of ignoring the original concerns are:

D-8 - Your attempted explanation of why it is appropriate to use the climatic section does not even begin to address the concern. Please refer again to the original concern.

D-9 - Your response to the last concern, about matching current and historic cover type data, that "We are unclear where this concern comes from since we are able to match current and historic

were inadvertently included in the network that fell within the Middle Soup Timber Sale (i.e., an inadvertent mapping error— R. Baty, Biologist, pers. comm. Feb. 1999), no harvest is presently planned for stands identified in the network (additional stands will be included to compensate for those that would be harvested in Middle Soup that were inadvertently assigned to the network). Stands identified in the network would be allowed special management consideration (within DNRC's discretionary limits), and would be subject to more stringent cover retention requirements, reduced roading, and minimal salvage etc. to meet SFLMP commitments. Such considerations, specifically, are presently undefined. It is understood that for such a network to truly promote function, long-term commitments are necessary. A "no entry" designation for a disclosed period of time will eventually be considered under this approach. This is vitally necessary to ensure that we "keep all the pieces." However, some level of flexibility will also be required. The network is currently viewed as a planning tool, and the form that long-term commitments under this approach will take is uncertain at present. Maintaining some flexibility in the development of this strategy in the form of longer-term commitments will be necessary for: 1) evaluating the effectiveness of the network; 2) considering recruitment old growth scheduling and distribution; 3) adjusting to influences of unforseen events such as wildfires, wind, insects and disease; and 4) adjusting management considerations as our understanding of old growth forests improves.

D-6

In the SEIS, we attempted to summarize the conflict between members of the ID team. We did not feel that the SEIS was or is the place to describe intricate and elaborate details of internal agency disputes. We realize and admit that we did not include every detail that you allude to in your letter. The ARM 36.2.528(1) state, "The agency shall prepare EISs that are analytic rather than encyclopedic." We did state on page 5 in the SEIS that "A more in-depth account of this individual's disagreements can be found in the project file, but the major arguments and DNRC's responses will be summarized here." Individuals who desire more information about the ID team conflict can review *all* of the details in the project file.

D-7

As stated previously, DNRC made a conscious decision to summarize your disagreements with the vegetation analysis, as well as summarize DNRC's response. Page 5 in the SEIS states, "A more in-depth account of this individual's disagreements can be found in the project file, but the major arguments and DNRC's responses will be summarized here." Your full comments and DNRC's full responses can be located in the project file for anyone who is interested in obtaining more information.

D-8

Regarding the commenter's accusation that we ignored previous comments the following is to reiterate our responses. The full comments and responses are in the project file.

The commenter criticizes the use of climatic section averages for old growth proportions by cover types. While we agree with much of what the commenter says regarding the influences on old growth amounts, we disagree with her conclusions. We use cover types to determine the proportion of old growth that should develop. The cover types we use are reflective of the predominant disturbance regime that a site experiences. For example, western larch cannot germinate and grow without nearly full sunlight. Thus, a fairly major disturbance, such as a mixed severity fire, must have occurred for the species to be present on a site. Antos and Habeck (1981) found such disturbances common in the Swan valley helping to perpetuate western larch / Douglas-fir stands. Ponderosa pine requires frequent disturbance (Arno, personal communication). In the absence of disturbance the representation of shade intolerant species (like larch and ponderosa pine) in forested stands diminishes. In areas that do not receive disturbance for several hundred years only a few relic individuals of shade intolerant species will exist; that does not describe the SRSF in either the 1930s or current inventories.

Contrary to assertions made in the memo trees, cover types, and habitat types are indeed a reflection of disturbance regimes, climate and topography, as well as individual species requirements. Using trees as integrators of some very complex interactions is well founded, documented, and supported in the scientific literature (Pfister *et al* 1977; Whitaker 1973). Habitat typing, as a means of classifying forest sites, could only be developed and relied on due to the fact that the trees and forests present on a site can serve as good integrators of the myriad complex interactions that occur between the abiotic and biotic environment. Assessments of site productivity also rely on specific trees as the integration of growing potential (McLeod and Running 1988). Fire regimes are closely related to habitat types, and cover types (Fisher and Bradley 1987). The system we use is simply a different application of the concept designed to help us understand and quantify our old growth requirements.

The factors controlling productivity, and the forests that develop from them are the same for the SRSF as they are for any forest. They can be described and their effects on forest development can be predicted. The cover types that dominate both the 1930s inventory of the SRSF and the DNRC determined appropriate conditions, are shade intolerant types. It is simply impossible for them to develop without disturbance. What we see in the SRSF are cover types dependent on disturbance, that exist in the latter stages of succession, due primarily to the lack of disturbance. If the SRSF continued to be undisturbed we would, without question, lose the representation of shade intolerant species that, as recently as the 1930s, dominated the forest.

The commenter suggests the SRSF is so different from the climatic section as to be considered unique, and non-representative. However, as described above, vegetation can serve as an indicator of complex natural phenomena that are difficult to measure. It is widely accepted that habitat type groups (HTG) combine sites with similar temperature, and moisture regimes. To substantiate the assertion that the SRSF was truly unique, with vastly different factors controlling productivity, disturbance regimes, and potential vegetation, we would expect the SRSF cover type proportions by HTG to be very different than is exhibited at the broad scale. That is, different forests would develop on similar sites if the SRSF was truly a unique tree-growing environment. Let's again, look at some data. The 1930s inventory shows that for the entire Flathead National Forest (roughly equivalent to the Climatic Section) the western larch / Douglas-fir cover type represented 66% of the area in the warm and moist HTG, and 41% of the cool and moist HTG. Comparing this to the warm and moist and cool and moist habitat type groups on the SRSF we see that the western larch / Douglas-fir cover type represented 76% and 47% of each HTG, respectively. Clearly, this assessment shows that cover type representation by HTG was roughly equivalent at both the broad scale (the FNF) and at the scale of the SRSF. The assessment supports the fact that the growing conditions (disturbance regimes, climate, soils, topography, etc.) and resultant forests, on the SRSF, are not unique.

A brief fire history analysis of the South Lost project area was conducted for the DNRC (Barrett 1997). This study showed that fire return intervals, and mean area fire intervals were very similar to other published data for equivalent sites. Barrett further states that his results were "strikingly similar to those for a larch dominated forest of similar size" in two other locations, both within the climatic section. These findings, further refute assertions of uniqueness made in the memo.

D-9

We use cover types for our old growth proportion designations. However, the commenter claims that cover types exhibit such wide variation in the proportion that develops into old growth as to be useless. To substantiate her claims she uses an outdated document (Losensky 1993), although she references the current and correct document (Losensky 1997). Furthermore, she incorrectly includes several climatic sections not in Montana. In addition, she shows numbers based on samples of cover

types that were represented on the landscape in only 'trace' amounts (far less than 1%). It is inappropriate to assume that numbers based on 'trace' samples can be broadly applied.

If one looks at the cover types with 1% or greater representation, from Montana climatic sections, and uses the commenter's outdated data, we see her claims of wide variation in old growth proportions within a cover type are not substantiated. The ranges of old growth proportions by cover type and climatic section from Losensky (1993) are as follows:

Old growth %	Lodgepole pine	Douglas -fir	White pine	Western larch / Douglas-fir	Spruce -fir	Ponderosa pine
lowest % old growth	0.8%	7.4%	21.8%	29.6%	31.9%	53.3%
highest % old growth	2.9%	16.3%	25.3%	36.6%	57.0%	62.8%

These ranges are considerably tighter than the commenter's assertions. Furthermore, in terms of a relative ranking of old growth proportions, the cover types fall out in exactly the same order in each climatic section where they are represented (with one minor exception): the most old growth is in the ponderosa pine type where non-lethal, frequent underburns allowed the development and retention of large seral tree species; next is western larch / Douglas-fir where moderately frequent fires allowed larch regeneration; then spruce; white pine; Douglas-fir; and finally lodgepole pine. The exception being in one climatic section the spruce type has more old growth than western larch / Douglas-fir, although the spruce type made up only 1% of the forest.

Updated data (Losensky 1997), show the following distributions of old growth proportions by cover type from Montana climatic sections:

Old growth %	Lodgepole pine	Douglas -fir	White pine	Western larch / Douglas-fir	Spruce -fir	Ponderosa pine
lowest % old growth	3%	6%	17%	34%	43%	59%
highest % old growth	5%	13%	24%	47%	46%	74%

Relative rankings are the same as indicated with the old data. Additionally, we see that, except for the western larch / Douglas-fir, and spruce – fir types, there is no overlap between the high proportion of old growth in one cover type and the low proportion in the next cover type. The western larch / Douglas-fir and spruce-fir classes show appropriate overlap in the sense that as western larch / Douglas-fir stands age and undergo succession they often transition into spruce-fir types.

Using climatic sections helps us refine our estimates of old growth by interpolation rather than extrapolation. The climatic sections describe broad areas of similar climate, and as seen in the Tables, exhibit slight differences in old growth proportions. So, through cover type, habitat type, and climatic section we integrate meso-scale climatic differences, micro-scale climatic differences, disturbance regimes, topographic influences, soils influences, and individual species autecological requirements to develop an ecologically based estimate of old growth amounts.

There are other reasons not to use small scale data to determine our old growth commitments. Among them, we need to consider what would happen if one of the very large stand replacement events, relatively common to western Montana, and the Swan Valley, had occurred in the time before the 1930s inventory. Such disturbances can easily affect over 100,000 acres. With the SRSF being 40,000 acres it is possible that the entire SRSF would be a single age class of 0 to 39 years old. If such an event had occurred prior to the 1930s inventory, and using the commenter's logic, we would never allow any stand on the SRSF to reach mensurational, or financial maturity let alone become old growth. We find such an approach unacceptable. We are looking to manage for long term sustainability, not short term boom and bust cycles as the commenter's suggestions would force us into.

Finally, in the commenter's preferred analysis procedure presented to the South Lost ID team, the commenter was advocating the use of climatic section averages for old growth by cover type, and in fact used the argument of consistency across climatic sections as supporting evidence (Adams, internal memo 12/23/96). Subsequently, she switched positions after results from that process were available.

The memo goes on to describe some further misconceptions. One of those misconceptions has to do with the difference between the 1930s inventory and what we call 'appropriate conditions'. We do not use the 1930s inventory to determine our appropriate conditions. Appropriate conditions designation is based on categorizing cover types based on the tree species currently present on the site. Emphasis is given to shade intolerant species since they are the ones whose representation on the landscape has been substantially reduced through our activities, fire suppression, timber harvesting, introduced diseases, etc.

The 1930s inventory found that white pine stands represented over 3,000 acres of the SRSF (not *zero* as the commenter claims), and that the western larch / Douglas-fir cover type represented 66% of the forest (not the over 70% as the commenter claims). Again, this is actual data from the digitized 1930s map, not the ocular (eyeball) estimate on which the commenter is relying.

The commenter appears to disagree with our adherence to strict cover type definitions. However, we believe it is important to consistently adhere to selected rule sets for cover type designations. Otherwise, assignment of cover types could become arbitrary or manipulative. Naturally, if the evidence suggested flaws in our application or rule set we would reevaluate them.

In the commenter's summary, she concludes our approach is seriously flawed. However, she has not taken into account, or has not accurately considered much of the evidence related to her concluding remarks and our extreme efforts to accommodate them. For example, she states that "all the DNRC has are summaries of the 1930s data by climatic section". We actually have the entire database she refers to for the Flathead National Forest. That data has been extensively analyzed internally, as well as contractually for the DNRC. Leeper and McLeod, presented one analysis of the 1930s data at a regional GIS symposium in 1997. That analysis focused on identifying strengths and weaknesses of the 1930s data to facilitate our use and understanding of what it really tells us. We further contracted with researchers to analyze the potential to use the 1930s data with HTG's to determine appropriate representation of cover types and old growth across the landscape. The commenter has been informed of both projects.

Finally, the interdisciplinary review process was extensive internally and externally. Comments and criticisms helped forge the consensus document we have now. The commenter's disputes or disagreements were responded to in writing, and were heard and discussed in several sit down meetings. After full consideration of her concerns the consensus was to retain the methodology described in the EIS.

Our use of old growth proportions by cover type was the commenter's preferred approach to analyze old growth for the South Lost EIS (Adams, internal memo 12/23/96). This concept forms an important component of the Guidance, and yet it is one with which she now claims to have serious problems. Her concerns were listened to, honestly discussed, and objectively appraised, but they ultimately turn out to represent a floating position that changes inexplicably.

In conclusion, we feel we have fairly considered the concerns the commenter raises in her memo. Many of these concerns have been previously addressed, but were re-evaluated in the context of this memo. In doing so we have used the best available science to evaluate their merit.

D-9 cover type definitions" is evading the issue - how can you possibly not understand the concern given the maps I provided you with? The concern comes from comparing actual maps of 1930's data with maps generated by the DNRC for cover type, and seeing that there are gross differences between cover type designation. To phrase the concern another way: If the definitions used in the 1930's and the definitions you are using classify the same stand for the same time period differently, then are the definitions really the same?

D-10 - In your response to (a) you state (in comparing old growth definitions for Green et al. And DNRC) "when looking solely at minimum criteria, both definitions will classify old growth with very little in the way of old growth attributes or quality". This is misleading. The Green et al. definitions require considerably more in the way of minimum old growth attributes than does the DNRC definition.

D-11 Other concerns

P S-1. DNRC claims "A lack of disturbance, in part due to effective fire suppression in the project area has led to a forest that is older and has a greater representation of shade-tolerant species than would occur under average historical conditions". This is untrue. Most of the South Lost project area is in the stand replacement fire regime. Both acreage across the landscape and within-stand conditions for such stands have not been greatly affected by fire suppression. As to your reference to "average conditions", this is only for average climatic section conditions, and DNRC has not even begun to demonstrate that it is appropriate to use this scale for age class distributions and old growth minimum amounts on the DNRC lands.

D-12 **P S-5** Alternative E, which was developed to address concerns raised at the public field tour does not deal with the concerns raised. One of the criteria of this alternative is to "Harvest within stands that have the highest risk of value loss through mortality, poor to very poor vigor, poor tree quality and\or exhibit major insect and disease problems". Another way of stating the first two of these criteria is that the stands targeted are old, decadent old growth. Concerns raised at the field tour dealt primarily with old growth, and quality of old growth. By targeting older, more decadent old growth, you have not dealt with the concerns.

D-13 **P S-6.** I do not understand how you calculated the loss of old growth stands at 200 acres. There are 168 ac of light reserve, 80.5 ac of moderate reserve, and 236 ac of heavy reserve in alternative D. You say that only the light reserve would change a stands age class, so I could not figure out why you say that old growth would be reduced by 200 acres if there are 168 ac of light reserve. It would be helpful if somewhere in the EIS you could include information on the age class and old growth attributes of each stand prior to harvest, and how it would change for each stand post-harvest. In chapter 4 I see a sentance that says that Atl D enters 481 acres of old growth and it would reduce old growth by 200 acres, but I still do not see how.

D-14 **P 13** The SEIS states that "The natural role of wildfire in this area would be emulated through the application of silvicultural treatments to promote natural diversity of stand structure (and) species composition." You need to check out the work emulate in the dictionary - to use the word here is clearly misrepresenting the proposed harvest treatment. The only aspect of fire that the treatments *attempt to resemble* is that the number of live trees has been reduced. The similarities

D-10

Refer to response 5 (a.) on page 5 in the SEIS. We disagree that the Green et al. definition **requires** considerably more in the way of minimum old growth attributes than does the DNRC definition. When looking solely at minimum criteria, both definitions are very similar. The Green et al. definition does provide guidelines on associated characteristics of old growth, but does not require that these guidelines be met in the strict sense of the definition as to whether or not a stand is classified as old growth. The minimum definition is solely based on age and number of trees per acre greater than a minimum DBH.

D-11

Refer to response D-8.

D-12

Alternative E was developed primarily to address the concern raised that the alternatives did not include an adequate range of volumes. The addition of Alternative E expands the range of volumes, from 8.3 – 10.9 MMBF to 3.5 – 10.9 MMBF. DNRC has attempted to resolve the old-growth quantity and quality issues, for all alternatives, through the development of an old-growth network.

One of the criteria for all timber harvest alternatives is targeting stands classified "at risk" in DNRC's Stand Level Inventory. These "at risk" stands usually have characteristics most associated with an old growth forest. They also have the highest risk of value loss to the trust because of poor vigor, poor tree quality and/or exhibit major insect and disease problems. The characteristics that make these stands desirable for old-growth associated species, also makes them a desirable for treatment to promote timber productivity.

D-14 basically end there. The treatments will remove the dead trees, whereas fire would leave them on site to provide a multitude of ecosystem services.

D-15 **P 48.** In interpreting you table on habitat type groups, the comparison between the SRSF and the project area is not valid because it is confounded by the fact that the project area is a subset of the SRSF. And on what basis, other than purely subjective opinion, are you dismissing these differences as "not substantial"?

D-16 **P 49-50.** The tables on patch size are interesting. I assume you realize that since the proposed harvest decreases patch size you are moving away from "appropriate" conditions. Shouldn't a statement to that effect be included in you summary table, so that it does not appear you are biased towards only pointing out where you think you are moving towards appropriate conditions?

D-17 **P 53.** This repeated use of the climatic section to represent average historical proportions is taken to the extreme when you state "a map of all old-growth stands in the SRSF is shown in Figure 3-1. Currently, 45 percent of all stands are 'old' versus an average historical proportion of 29 percent (for the climatic section)." If you are comparing historic to current amounts of old growth on the SRSF, then use historic proportions for the SRSF! Why not include a copy of the map I gave you of actual 1930's data for the SRSF that shows that about 85% of the forest was old, with most of that being over 200 years old!

D-18 **P 53.** In discussing the cedar type, and the fact that there was none mapped out in the 1930's, you should point out that this is due to the scale of mapping.

D-19 **P 65.** In your cover type table, you show that 26% of the SRSF should be maintained as white pine cover type. Please explain clearly why this is so when not one single acre on the SRSF was mapped out as white pine cover type in the 1930's. Aren't your "appropriate" conditions an attempt to mimic what was on the landscape in pre-settlement conditions?

D-20 **P 82.** The criteria to define boreal owl habitat is broader than the criteria I used in the DEIS. I attempted to include only those stands that would provide suitable, fairly high quality habitat for nesting. This dilutes the effect of the proposed harvest treatments for boreal owl.

D-21 **P 100.** You state "On the SRSF (DNRCs choice of scale to analyze for old growth commitments), there are currently 17,333 acres of old growth". Earlier in this SEIS there are many statements about how the "SRSF is *too small*". If you feel it is appropriate to use the entire climatic section as the appropriate analysis area to determine historic old growth amounts, then why are you not also displaying current data for the climatic section? You present historic age-class data for the climatic section and ignore the SRSF historic data, then you ignore current data for the climatic section and only present current data for the SRSF. What is so hard about comparing apples to apples and oranges to oranges?

D-22 **P 101.** How can stands that receive a moderate reserve treatment be classified as old growth post-harvest, and be returned to full vigor?! Recall that your description for full vigor on page

D-13

Regarding comments on how post harvest ages were determined there is some confusion. Stands were reduced in volume based on estimates associated with various treatments. In some case post harvest volume was too low to meet minimum old growth requirements. These were not included as old growth acres. However, in some cases the same prescribed treatment applied to a stand with much higher initial volume would not reduce volume below old growth minimums. Thus, some stands fell out while others did not. In the case mentioned, 32 acres of moderate reserve treatment had insufficient volume post harvest.

D-14

The commenter is incorrect regarding our use of the word 'emulate'. To emulate is: *to strive to equal.* Consequently, it is with full knowledge of the meaning of the word and of our actions that we describe our attempts to 'emulate' natural processes. A more complete understanding of disturbance shows that harvest can emulate fire in a great many more ways than the one the commenter points out. Of course, there are some differences, thus we do not use a word like 'mimic', 'ape', 'imitate', or 'replicate' in conjunction with natural disturbances.

D-15

Regarding habitat type group characterization we suggest re-reading the statements in the SEIS where we show that the warm and moist group and the cool and moist group make up nearly 90% of the SRSF and the South Lost area.

D-16

We are unaware of studies on the naturally occurring size of age class patches. Granted, some work has been done, but it is far from conclusive regarding natural patch sizes.

D-17

Refer to response D-8.

D-18

We are not willing to assign map unit size as being responsible for not mapping cedar. A host of other reasons are just as applicable. However, data shows the overstory of those stands are not cedar dominated. Thus, 60+ years ago, the inventory crews may have mapped the overstory, which was not cedar dominated.

D-19

Refer to response D-9.

D-20

The boreal owl analysis contained in the SEIS was intended to accurately reflect the existing condition of boreal owl habitat, and the potential effects of the proposed alternatives. The boreal owl habitat model used in the SEIS analysis was based upon the professional judgement of DNRC's Forest Management Bureau Biologist, and reflects current knowledge of boreal owl ecology. As boreal owls use a broad range of sites for nesting and meeting other life requisites (Hayward 101:1994), it was deemed appropriate to also consider a broader stand classification where particular forest structures usable by boreals were also likely to occur. While the claim could be made that "This dilutes the (demonstrated) effect of proposed harvest treatments...", not considering this broader classification could also have adverse consequences for owls. Further, old growth stands believed to maintain the greatest probability of use by nesting owls (those >150 years old with >40% canopy closure) were considered and viewed separately in the analysis (SEIS, Table 3-24 p.82, and Tables 4-18 and 4-19 p.129).

Hayward, G.D. 1994. Review of technical knowledge: boreal owls. pp. 92-127 in G.D.
Hayward and J. Verner eds., Flammulated, Boreal and Great Gray Owls in the United States: a Technical Conservation Assessment. U.S. For. Serv. Gen. Tech. Rep. RM-253. 213pp.

D-21

Regarding page 100, the commenter is incorrectly mixing concepts. For example, when determining long term sustainable conditions the small scale is inappropriate. However, when attempting to manage for long term sustainable conditions we have to work with what we have, hence the SRSF is the appropriate scale.

D-22 58 is "Forests in this class have an open canopy and growth is optimal. An example of a stand in this class would be young, immature, and probably in the seedling or sapling stage." It's interesting a stand that could be described as young, immature and in the seedling or sapling stage could also meet DNRC's definition for old growth!

D-23 **P 102.** It would be appropriate to compare current to historic patch sizes, especially for old growth, and to point out that alternatives B, C, and D would all move further away from historic conditions. It would also be appropriate to include a discussion of how important patch size is thought to be for many old growth associated species.

D-24 **P 104-109.** The information in the bar graphs is not discernable being merely shades of grey.

D-25 **P 111.** This summary of effects is quite offensive, especially your statement "Further, when we consider our SFLMP commitments we find that some of the very small scale effects we do have, move us in the direction of desired future conditions". Is further reducing old growth patch size, and harvesting the higher quality old growth stands moving you in the direction of "desired future conditions". Is harvesting 131 acres of boreal owl habitat, and reducing potential pileated habitat by 493 acres moving in the direction of desired future conditions.

The commitments in the SFLMP are quite different from what you propose in this sale. This sale certainly does not "focus on maintaining or restoring the forest conditions that would naturally have been present given topographic, edaphic, and climatic characteristics of the area"! This transparent attempt to gloss over effects is simply indicative of a general nonchalant attitude towards old growth that is not appropriate or acceptable for a public land management agency in 1999.

D-22

Stands that meet the minimum old growth definition are called old growth. We disagree with the commenter's suggestion that seedling, or sapling stands will be called old growth, and the data supports our position.

D-23

Currently, we do not possess maps that depict clear, accurate estimates of historic patch size, thus any attempted comparisons would be misleading. Further, any map used for comparison representing historic patch size and distribution for any one point in time could be critically viewed (ie., justifying why one point in time is preferable to consider over another). Patch size and shape, as it relates to old growth, were considered and discussed in the SEIS (pp. 48-50, 55-58, 102, 103). Patch considerations with regard to wildlife (including several old growth associated species) were also addressed in the SEIS (see "Patch Characteristics" pp. 74, 75, 119, 120, and Sensitive Species assessments for Boreal Owl, Fisher, Lynx and Pileated Woodpecker, pp.81-90, 128-142). These analyses on "patch" considerations were deemed appropriate for this proposal.

D-24

In producing the document, DNRC made a conscious decision not to produce all of the bar graphs in color. Color reproductions of an additional six pages (for 80 copies) would have cost an additional $480. Since the bar graphs are vertical, and they correlate directly to the vertical nature of the legend, we felt that the public would be able to comprehend the graphs. We realize that the black and white graphs are not as discernable as color graphs, but we felt that the benefits of color graphs did not outweigh their costs.

D-25

Where desired future conditions, or appropriate conditions can be determined, the Alternative effects are described as to direction of movement. Where they cannot be adequately described we do not speculate as to direction of movement.

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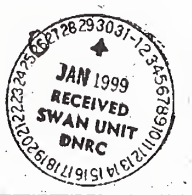

January 22, 1999

Glen Gray, Unit Manager
Swan River State Forest
58741 Highway 83
Swan Lake, MT 58741

Re: Comments on South Fork Lost Creek Supplemental EIS.

Dear Glen,

I am writing to offer a few brief comments in support of the preferred alternative, Alternative D, in the South Fork Lost Creek SEIS. Alternative D, by producing the largest estimated total return to the School Trust of all of the alternatives, best meets the premise of state law that mandates the DNRC to administer state land to produce the largest reasonable and legitimate return. Alternative D also works toward maintaining and enhancing long-term timber productivity by improving forest health and diversity. These objectives are being met with minimal environmental impacts through extensive environmental documentation, very thorough planning and substantial mitigation efforts. In our view, Alternative D doesn't go far enough in some aspects toward maintaining and enhancing long term timber productivity that will produce the largest reasonable return in the long run. We will support your choice of Alternative D as the preferred alternative realizing that a lot of your silvicultural objectives have been compromised by mitigation efforts to deal with other resource concerns.

Alternative D produces the highest total dollar return of all the alternatives in the short term, but both alternatives B and C should produce a greater long term return by treating more acres which does more to maintain and enhance timber productivity on these additional acres. At some point, the DNRC cannot continue to sacrifice timber health, vigor and productivity to address an ever increasing list of concerns and still produce a positive revenue return to the School Trust fund. Table 4-31 of the SEIS documents the steady decline in total revenue to total cost ratio for the DNRC timber sale program over the last four years. The DNRC will be pressured to stop

Stoltze Land & Lumber Co.

We believe the silvicultural treatments prescribed under Alternative D will most effectively increase future timber productivity, on the acres treated within the sale area, and promote long term return to the school trust. The State Forest Land Management Plan specifies resource standards for resources other than timber. Meeting those standards may compromise potential short-term return to the trust. An important function of the resource standards is to maintain a healthy forest ecosystem, which will then contribute to maintaining the long-term financial return. What may appear as compromises to resolve other resource concerns are, in many cases, our effort to maintain the potential of school trust lands to financially support school trusts in the long term.

We are also concerned about a decline in the total revenue to total cost for the timber sale program over the past several years. Given the current stumpage market, the return ratio may decline further. Increased public involvement, difficulty in resolving resource concerns, and litigation of timber sales has also compromised the cost ratio of the departments timber sale program.

DNRC is proposing a collaborative process in developing the next project. Through this process, the department will explore a wide range of alternative ways to achieve a sound timber management program (possibly including a long-term lease or other proposals), while more efficiently resolving conflicts. We are hopeful some of these new approaches will improve the cost ratio to the sale program.

selling timber or find other more profitable sources of revenue if this trend continues. I don't believe the DNRC would be happy if this situation occurred and I know it would have a major negative impact on a struggling forest products industry in Montana. Timber productivity and long term revenue concerns must be balanced with other resource concerns to reverse the trend in declining total revenue to total cost ratio.

There are several units included in Alternative C that are designated helicopter yarding units that I believe could be tractor yarded with some additional new road construction or temporary road construction. Units 12 through 16 appear to be located on gentle enough topography to access them with a road system off the South Fork Lost Creek Road. This new road system would need culverts or some other structures to cross the streams between the units, but with BMP's the risk of sediment delivery should be minimized. Tractor yarding systems would be much more cost effective than helicopter yarding which should more than offset the cost of road construction. Tractor yarding these units should also improve the revenue return to the School Trust. Including these units in the preferred alternative would treat more acres while enhancing the timber productivity on these acres. There may be other reasons why this road system was not included in an alternative, but I hope this idea was given serious consideration.

The DNRC has done a very thorough job of documenting, reviewing and mitigating for other resource concerns in the South Fork Lost Creek proposal. The preferred alternative is a very environmentally sound proposal that has tried to balance numerous concerns. Stoltze would have liked to have seen more acres treated in the preferred alternative and we believe additional acres could be treated with very minimal environmental impact. However, Stoltze will support the DNRC preferred alternative, Alternative D. Thank you for the opportunity to comment on the Swamp proposal. I hope my comments are of some use to you.

Sincerely,

Tom Tintinger

Tom Tintinger
Forester

TT/tc

MONTANA Wood Products ASSOCIATION

February 1, 1999

Glen Gray
Unit Manager
Swan River State Forest
2250 Highway 93 North
Kalispell, MT 59901-2557

Dear Glen,

On behalf of the members of Montana Wood Products Association, I am writing in support of alternative D under the South Fork Lost Creek EIS. This appears to be a reasonable project which generates revenue for trust beneficiaries while protecting other resource values.

As you have experienced in recent years, efforts to mitigate for concerns expressed by critics of your projects have led you down a path leading to a non-viable program. Future timber management proposals in the Swan must be economically sound, based on silvicultural principles that emphasize productive, sustainable forestry.

Thank you for the opportunity to comment.

Sincerely,

Cary Hegreberg
Executive Vice President

Recycled Paper Aspen Court, Suite 2-B - 33 S. Last Chance Gulch - Helena, MT 59601 Phone (406)443-1566 - Fax (406)443-2439

Montana Wood Products Association

The goal of our timber management program is to generate the highest reasonable return possible in an environmentally sound manner. All of our timber sale proposals are designed to do this. Yes, it's true that some mitigation measures may lead to alternatives that are not economically viable. We agree that future timber management proposals must be economically sound and be based on silvicultural principles that emphasize productive, sustainable forestry. DNRC must also manage trust lands to maintain and improve a clean and healthful environment for present and future generations. We feel that for this project, alternative D is such a plan.

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South Fork Lost
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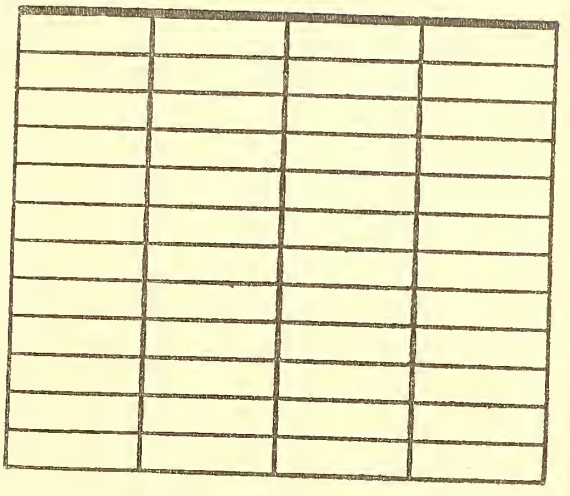

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